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THE NATURE OF MUSCULAR DISEASES*

D. DENNY-BROWN, M.D., F.R.C.P.(Lond.),†
Boston, Mass.

DISEASES OF THE MUSCULAR SYSTEM have traditionally been the despair of the pathologist, the internist and the neurologist. The reason for this is not far to seek. It is only in recent years that there has been any real progress in knowledge of the fundamental biochemistry of muscular contraction and excitation, much less the abnormalities which occur in disease. This is not for lack of high endeavour, indeed the literature on these subjects is enormous. Muscle is a very complex tissue, and every new item of knowledge concerning it poses new questions. Its problems are so intriguing that few who have become immersed in one of them ever loses his interest in the tissue. Donald McEachern carried such an interest through his whole professional career, and I would like to pay tribute to my old friend and colleague by highlighting some of his observations in a discussion of some of the fundamental problems of muscular diseases.

Only twenty years ago muscle was considered to be solely concerned with the production of contraction. It was known that different muscles varied greatly in fat content and in pigmentation, and the studies of Greene[11] on the Columbia River Salmon in 1912 had already demonstrated the manner in which the muscle fibre could store fat, and lose it during a fasting migration. In 1929 it was shown[5] that the actual amount of fat granules in the muscle fibre, and the amount of pigment (myohæmoglobin) had no relation to the contractile process, though the slower, less highly differentiated "red" muscles had a higher content of pigmented granular muscle fibres. More highly differentiated muscle fibres usually have a slightly larger motor nerve fibre, but in the pectoralis muscle of the pigeon, which contains predominantly small dark fibres and a few very large fibres, I was able to find some clear instances of the innervation of both types by a single motor fibre (Fig. 1). This is a definite indication that these metabolic differences are independent of the nervous system. About the same time those investigating the action of insulin were becoming aware of the glycogen storage function of the muscle fibre, independent of the amount that that individual muscle fibre would use or require. It had been manifest since the last century that the size of muscle fibre was related to hypertrophy or atrophy, and was related to the size of the individual muscle fibres and not to change in their number. All these changes are unrelated to each other, and reveal some of the many independent activities of muscular tissue.

Fig. 1.—From a section of the pectoral muscle of the pigeon stained by the Bielschowsky reduced silver method, to show one axis cylinder branching into three loose-meshed motor end-plates of the avian type. Two end-plates are on large clear muscle fibres (b, c), and one on a small dark muscle fibre (a) of the granular pigmented type.

Donald McEachern's earliest interest had been in cardiac muscle, and he had been working with Meyerhof and Dale when he first came to the National Hospital, Queen Square, when I was privileged and fortunate to meet him. He was then not only greatly interested in neurological medicine, but was especially hopeful that the Meyerhof theory of the chemistry of muscular contraction, apparently well supported by Hill's work on the thermodynamics of contraction, was

*A paper read at the Memorial Meeting of the Montreal Neurological Society, January 15, 1952, in honour of the late Dr. Donald McEachern.

†Putnam Professor of Neurology, Harvard Medical School.

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to open a new chapter of the pathological chemistry of muscle. The lactic acid theory, however, turned out to be one of the great "blind alleys" of muscular physiology, and ten years passed before promising new clues were found, leading to our present day conception of the action of adenosine triphosphate and actomyosin. But McEachern had another string to his bow, for though the biochemistry of muscle came to a standstill, rapid progress was made in regard to the process of neuromuscular transmission, and here his training with Dale gave him a special advantage. The importance of acetylcholine in transmission, and the discovery of the effect of anticholinesterases in myasthenia gravis had led to intensive investigation of these substances by Dale, Feldberg and others. The demonstration that a marked defect in potassium was related to family periodic paralysis also indicated that disorders of excitability were of clinical importance.

McEachern applied himself to these problems with enthusiasm. His paper with Pudenz and McIntosh[24] is a classical study of the relation of serum potassium levels to periodic paralysis. Although Tyler and his colleagues[31] have now shown that change in serum potassium levels are not necessarily altered in an attack, the studies of Aitken,[1] Ferrabee,[9] Allott[2] and McEachern[24] and their associates point clearly to a shift in potassium as the only valid clue to pathology. Where does the potassium go? It is not excreted; it disappears into the muscles. We have yet to learn the meaning of this. If in some cases there is no change in serum potassium, that must be because reserves in other tissues, such as the liver, must be adequate. This explains why some patients with periodic paralysis show cardiac irregularity, some do not. The disorder in McEachern's patient by showing the greater defect demonstrates that a shift in muscle potassium must occur.

In his studies on myasthenia gravis McEachern soon became preoccupied with an unusual and peculiar phenomenon—the myasthenic syndrome of hyperthyroidism. The problem is full of enigmas, but I might try briefly to indicate its importance. First it is by no means certain that myasthenia gravis is due to a defect in production or persistence of acetylcholine at the motor end-plates. McEachern[17, 18] was consistently critical of this view. Myasthenia is certainly a block in neuromuscular transmission. The facile assertion of many that the action of prostigmine demonstrates that acetylcholine is deficient in the disease is probably an illusion. That this is so is clear from simple clinical observation. In the natural course of myasthenia gravis many muscles become completely paralyzed in bad attacks, yet may recover contraction in a remission. Prostigmine does not reverse such paralysis, yet the remission of the disease will reverse it. Prostigmine reverses recent paralysis, and intermittent paralysis, but not maximal myasthenia. Yet the very large doses of prostigmine that are sometimes employed will cause such a completely paralyzed muscle to show fascicular twitching. This means that acetylcholine is having its effect at those end-plates, yet the muscle will not contract.

This effect seems not to have been noticed. To me it means that better anticholinesterases are not the answer to myasthenia gravis. Prostigmine is quite as efficient as the longer-acting anticholinesterases, for these do not reverse paralysis more completely. Anticholinesterases have the same relation to myasthenia gravis that they do to curare poisoning; they reverse only the mild and moderate degrees of each. I might allude to the recent paper by Burns and Paton[4] on the antagonism of curare and decamethonium in the end-plate, each capable of blocking transmission, yet acetylcholine counteracts only the one, curare. Myasthenia gravis is certainly like curare poisoning, and we must look for a curare-like substance. McEachern[18] immediately saw the significance of the temporary myasthenic paralysis in the new-born baby of a myasthenic mother described by Geddes and Kidd.[10] McKeever[21] (1951) has confirmed its occurrence in another infant. This surely is the clue, though the substance that passed from mother to child has yet to be found.

The fundamental pathology of myasthenia gravis is unknown, but it is clear that it must in some way involve the endocrine glands. The rôle of the thymus is debatable but is certainly not the primary defect (McEachern[17]). More significant, but also more enigmatic, are the related disorders of thyroid and adrenal. McEachern and Parnell[19] rightly stress the rôle of the thyroid, and the statistical frequency of hyperthyroidism in myasthenia gravis. Two types of relationship were observed, the one a myasthenic reaction in association with thyrotoxic myopathy (McEachern and Ross[20]), both re-

lieved by treatment of hyperthyroidism, and the other an alternation of myasthenia gravis and hyperthyroidism in the same patient (McEachern and Parnell[19]), where the hyperthyroidism appeared to relieve the myasthenia. The solution of this apparent paradox has not been found. It is paralleled by the occasional association of adrenal insufficiency and myasthenia gravis (Kane and Weed[12]) on the one hand, and the worsening effect of cortisone on myasthenia (McEachern[18]) on the other.

Such contrary effects do not cancel out, for they indicate clearly that some endocrine factor is of supreme importance in this disease. It has been natural to look to the pituitary gland for the unknown, especially in view of the deleterious effect of pregnancy in myasthenia. The disorders related to excess or deficiency of thyrotropic hormone do not appear to be related to myasthenia gravis. The presence of unusual eosinophilic colloid material in the pituitary observed by Torda and Wolff[29] is still of doubtful significance. The known effects of acidophilic and basophilic adenomas do not include myasthenia. Pituitary adrenocorticotropic hormone (ACTH) worsens myasthenia temporarily, but in a manner which suggests that the effect is indirect. The behaviour of myasthenia gravis in relation to thyrotoxic disease clearly indicates that some unknown, with important effects on thyroid, thymus and adrenal function, is involved. The use of ACTH to obtain a "rebound" effect, an improvement after a preliminary worsening,[28, 30] is still a hit-or-miss method of reaching this unknown.

These studies of muscle showed that disease could affect the muscle cell in two different ways. The excitatory process could be affected either in its transmission, as in myasthenia gravis, or in its propagation in the muscle fibre as in periodic paralysis. An observation of Russell, Odom and McEachern[26] indicates that excitatory function can be separately affected in the nerve cell, though I do not think they were aware of that implication. The coarse fasciculation of amyotrophic lateral sclerosis was at first thought to be due to abnormal discharges of the nerve cell. Donald McEachern and his colleagues showed that it could continue after anæsthetizing the peripheral nerve. That is indeed so, but not in my observations as much as before block. This means to me that amyotrophic lateral sclerosis is a disorder not primarily of nerve cell or of peripheral arborisation, but of the excitability of the whole neurone membrane. Of the other functions of the muscle fibre the glycogenic function of muscle can be affected independently of excitability, as in Von Gierke's disease and in a curious anomaly described recently by McArdle.[16] Similarly the pigment metabolism can be separately disordered as in acute myohæmoglobinuria.

So far we have not considered the contractile function of muscle. The new conceptions of biochemistry have focussed attention on the myofibril, that structure in muscle which has so long fascinated the histologist by its alternately polarized transverse striation. The evidence that the myofibril was the ultimate contractile element had long been in the hands of the histologist, for the living fibril had been shown by Schäfer to be capable of contraction when teased apart from the muscle fibre, whereas the remaining structure is not. The myofibrils are about 2 microns in diameter and run end to end of the muscle fibre. The only difference between a big muscle fibre and a small one, an hypertrophied one and an atrophic one, is the number of myofibrils. Under the electron microscope the structure of the myofibril is of long filaments closely resembling myosin, with alternating striate bands which are localized collections of a mineral substance rich in potassium.

The relationship of muscle to nerve is a most remarkable physiological symbiosis. It has long been known that atrophy of muscle follows nerve section. The work of Tower, Eccles and ourselves shows that the receipt of nerve impulses is not the factor which determines this relationship. It is something, presumably chemical in nature, which anatomical continuity with nerve gives to muscle. The most obvious feature of denervated muscle is atrophy, simple loss in size. Atrophy is due to loss of myofibrils, for except in number of these, and for some mild nuclear increase, the histology of the muscle fibre is maintained, usually for many months. Fibrillation is a striking feature of such fibres. It is a fetal characteristic, for it is seen in the fetal muscle cell in tissue culture. Atrophy is at first a reversion to the fetal state. In the later months after nerve section scattered fibres in the atrophic muscle show fragmentation, which is a different process, which until recently has been obscure.

It has long been known that trauma to muscle leads to necrosis of the traumatized part of the muscle fibres, followed by regeneration from the

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remaining unaffected part. Sprouts of myoplasm and muscle nuclei extend into the gap, and reconstitute new fibres. LeGros Clark[7] has shown that the integrity of the endomysial fibrous tubes is essential for this process to form new muscle fibres. If the tubes are lost, large multinucleated muscle buds result. In this process the new muscle fibres develop new myofibrils which fill up the muscle tubes (Fig. 2a), but only if two conditions are satisfied. First there must be tension, second there must be recent neuromuscular continuity. Following the work of Kirby[13] it was thought that innervation of muscle was not essential to regeneration. Within two

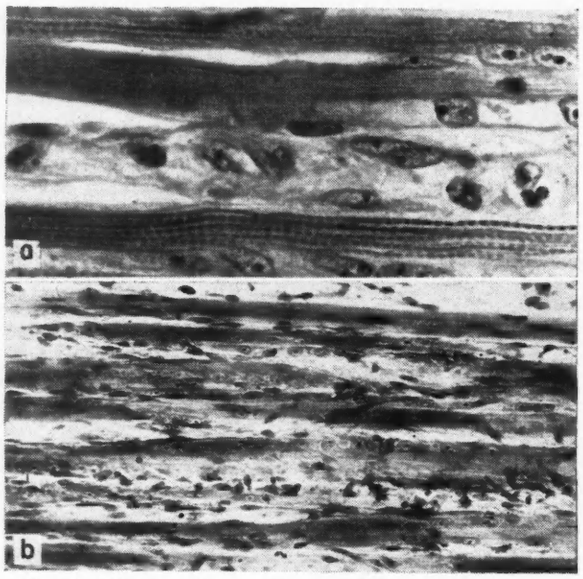

Fig. 2.—(A) Gracilis muscle, cat, 11 days after thermal injury, to show the regeneration of myofibrils that is regularly observed between the 5th and 15th day after injury of normal muscle. Phosphotungstic-acid hematoxylin. (B) Abortive proliferation of muscle nuclei and fragmentation without formation of myofibrils, 14 days following thermal injury in a muscle denervated for 6 weeks. Phosphotungstic-acid hematoxylin.

months of denervation this is true, but if localized trauma is used as a test, we have found[6] that within that time progressively poorer regeneration of myofibrils occurs, and after the second month trauma to the atrophic muscle initiates fragmentation (Fig. 2b), not regeneration. In some muscles, *e.g.*, sartorius of the cat, fragmentation occurs spontaneously after the fourth month, and results in complete disappearance of large parts of the muscle within one year. Other muscles are more resistant, possibly because less exposed to overstretching. The muscle fibres of the muscle spindle, more fetal than the others, are very resistant to this process.

It is therefore clear that the denervated muscle cells not only progressively lose myofibrils, but are unable to form new ones in response to trauma or to the natural stimulus of tension. In this sense muscle receives something from the nervous system, which enables regeneration of myofibrils, and contains a reserve which is exhausted in about two months. It is further remarkable that the histology of the muscles of primary muscular dystrophy shows that the muscles in that disease are very gradually fragmenting, without regeneration* of myofibrils (Fig. 3a). This is the explanation of the peculiar distortions of myofibrils seen by Marinesco[22] in dystrophy and called by him "myotexie". These are especially obvious in dystrophia myotonica,

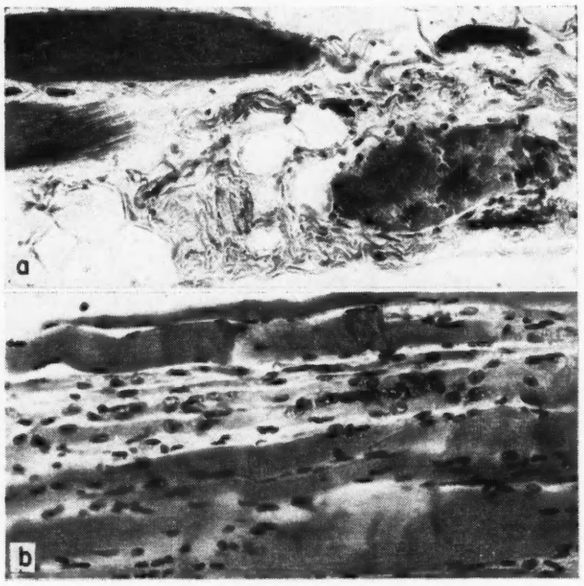

Fig. 3.—(A) From biopsy specimen of calf muscle of patient suffering from Landouzy-Dejerine type muscular dystrophy. Phosphotungstic-acid hematoxylin. A portion of a fragmenting muscle fibre, lower right, presents no evidence of regeneration of myofibrils, compared with the coarse bundles of myofibrils in remaining muscle fibres, upper left. (B) Section of muscle from myositis and scleroderma. Hematoxylin and eosin. To show spontaneous regeneration in an area of damaged muscle, with robust young myofibrils which are only lightly stained by this method.

where the great excitability of the muscle fibres causes them to rupture their myofibrils. It is therefore apparent that the search for pathologic chemistry in muscular dystrophy is much more likely to be successful if it is extended to the mechanism of replacement of myofibrils, than to be confined to the process of contraction.

Also prominent in muscular dystrophy is the degree of fat deposit in the muscle. Such deposit of fat is part of the process of fragmentation of

*Since this lecture was given we have performed a second biopsy, 11 days after the first, in a patient suffering from Landouzy-Déjerine type of muscular dystrophy. At the edge of the previous cut the muscle fibres were undergoing degeneration without formation of sprouts, clubs, or myofibrils. Regenerative power was absent, even in well-formed muscle fibres.

muscle, identical in muscular dystrophy and neural atrophy. These fat cells appear to be degenerate products of the endomysial fibroblasts, not a metamorphosis of the muscle cell. The difference between other atrophies and muscular dystrophy is not in the nature of the fat, but in its appearance in dystrophy often *before* any atrophy has occurred, thus increasing the size of the muscle. But even at that stage fibre-splitting is obvious, as noted by Erb, and this means that the dystrophic muscle has been abnormal since between the 15th and 25th week of embryonic life, which is the only time that muscle fibres normally divide by splitting (Cuajunco[8]). After that time they increase in size by increase in myofibrils. This disorder in formation of myofibrils, and degeneration of endomysium into fat are consistent with the presence of an inborn metabolic defect in dystrophy, but except in duration the defect appears to be of the same kind that leads to ultimate fragmentation in neural atrophy.

The connective tissue of muscle is evidently very specialized. Its reaction to fragmentation of the muscle cell is comparable to that of the endoneurium, which is a very specialized fibroblast, dependent upon the integrity of the nerve fibre it supports. For example, a shortened muscle develops collagen in the endomysial and perimysial septa, thus causing the shortening that we call contracture. It is remarkable that such collagen and contracture fail to occur if the nerve is sectioned. In that case the endomysium is already slowly undergoing the reverse change which leads ultimately to fatty replacement. The reaction of the muscle to tension is dependent upon the presence of something it gets from nerve. The reaction of the endomysium to tension is dependent upon something it gets from muscle.

The endomysium is also the seat of other changes, unrelated to the process of contraction. In the fetus it is the site of hæmopoiesis, with areas of formation of red cells. Under certain circumstances it is involved in lymphoblastic activity, and this is a possible explanation of "lymphorrages" of thymic and adrenal disorder. Lymphorrhages of this type are a reflection of the endocrine disorder, not of the disorder in excitability. In diseases such as lupus erythematosus, scleroderma and periarteritis nodosa, the endomysium of the muscles may become the seat of intense activity which, by the production of œdema, fibrous tissue and collagen, lead to great disorder in contractile function. This is the myositis of the "collagen" diseases, interstitial nodular myositis, which can be dramatically changed by ACTH and cortisone. It is of course necessary to differentiate such myositis sharply from the myositis of parasitic disease. This may be at times difficult as in a recent case in Boston City Hospital of a woman 59 years of age whose myositis was shown by biopsy to be due to toxoplasmosis (Andrews, Kass and Adams[3]). In interstitial myositis any destruction of muscle fibres is normally followed by active regenerative changes, with ample production of myofibrils, as is shown in Fig. 3b from a case of scleroderma with myositis. The action of ACTH and cortisone appears to be in lessening of the endomysial reaction, and not in any change in the reaction of the damaged muscle fibre. Even in trichinosis ACTH produces lessening of muscle tenderness and fever, without change in the anatomical parasitic lesions in the muscle fibres (Luongo, Reid and Weiss[15]).

Greater difficulty attaches to the differentiation of dermatomyositis and progressive polymyositis. The former is to all intents and purposes an acute hypersensitivity phenomenon, with good prognosis if the initial onslaught spares the respiratory muscles. It is associated with brisk regeneration of myofibrils. We do not believe we have seen vitamin E deficiency in man, but our colleague Dr. Pearson[23] has produced an identical lesion in suckling mice with plasmocid, and both lesions are identical in appearance with those of the Coxsackie viruses. The occurrence of the phenomenon in suckling mice at a very particular stage, its patchiness and its absence after nerve section, and its association with intense regenerative activity, all point to a very particular biochemical mechanism. The only known human equivalent is pleurodynia, which has been shown by biopsy to be due to Coxsackie virus (Lepine[14]). This does not mean that vitamin E could not affect muscular dystrophy, but we have not ourselves had evidence that it does so, and vitamin E is certainly not necessary for regeneration of myofibrils.

We would therefore make a sharp distinction between true muscular dystrophy, neural atrophy and perhaps some cases of progressive polymyositis, on the one hand, and interstitial nodular myositis, virus and parasitic myositis and experimental vitamin E deficiency on the other. In the first the process of regeneration of neuro-

fibrils appears to be primarily at fault. In the second group a variety of types of disorder of the interstitial and parenchymatous tissues is associated with good regenerative response. The response to cortisone appears to indicate some importance of this agent in relation to endomysial reactions, but not through any effect on the degeneration or regeneration of the parenchyma of muscle. The position of thyrotoxic myopathy in such a consideration has yet to be determined. The muscular disorder of dystrophia myotonica appears to be independent of the endocrine changes of that disease.

Our present conception of the nature of the primary muscular defect in muscular diseases therefore indicates that the endocrine glands are important in several respects, and of no significance in others. The report of McEachern and his colleagues[25, 27] that ACTH and cortisone could affect "menopausal muscular dystrophy" stimulated great interest because the classical muscular dystrophies are a class of disorder in which the fundamental defect is remote from the endocrine mechanisms. The type of case reported as "menopausal muscular dystrophy" is, however, one that we ourselves would classify as myositis. It is not known whether there is retained ability to regenerate myofibrils. If so, the effect of ACTH is in line with that in other types of myositis, and the problem of dystrophy still remains unsolved. Had Donald McEachern still lived I am sure he would have delighted in pursuing the question of the validity of such differentiation. But the effects he observed lead us back to the main problems, and I am sure he would have agreed that the source of the abnormal chemistry in relation to disorders of excitability and in the interstitial reactions in endomysium and tendons is to be sought in the endocrine glands. The property of regenerating myofibrils is independent and has not so far been associated with endocrine function. This, for me, is the real importance of his careful observations on thyroid disease and on the effects of cortisone.

It is difficult at such short distance to see a man's work in true perspective, but we can at least sketch the immensity of the problem, the wide extent of his endeavour, and state our belief that when the full story is unfolded he will be seen to have been even more successful than he dared hope. Last but by no means least, let us admire his stout courage to persevere with most difficult and discouraging problems, surrounded as he was by the exciting explorations of surgical neurology.

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ALOPECIA AREATA*

KENNETH I. FREEMAN, M.D., *Toronto*

IS THERE ANOTHER DISEASE in the whole field of dermatology that has more emotional impact, scientific and pseudo-scientific conjecture, or has been more exploited by charlatans, than alopecia areata? Consider, on the one hand, the psychic trauma induced by a sudden loss of hair, the hope engendered by a favourable prognosis, the relief caused by a favourable result, and the irreparable psychological damage in the failures. On the other hand, consider the ease of diagnosis, the etiological conjecture, contradictions and ignorance, the doctor's relief that here at last may be a "baldness" that he may "cure", and his disappointment and sense of frustration when he has tried everything and nothing has helped.

*Section of Dermatology, Active Medical Staff, Mount Sinai Hospital, Toronto, Ontario, Canada. Read before the Canadian Dermatological Association, at the Fifth Annual Meeting, Seigniory Club, Montebello, Quebec, June 18, 1951.

The purpose of this paper is to present a case of alopecia areata with regrowth of hair after 35 years of almost complete baldness, and secondly to review the available literature, for the past ten years, and present our present knowledge of the etiology of alopecia areata.

CASE REPORT

Mrs. M.G., was born in Scotland in 1900, the eldest in a family of six children, one brother and five sisters. No other member of the family, even distant relations to her knowledge, had any abnormality of the hair. She had never been seriously ill. At the age of 12 years, she developed a few bald spots on her scalp which completely disappeared within a year. At 14 years, she began to menstruate every 28 days, lasting three or four days, with average distress and flow. At the age of 16, her hair began to fall out again, and within a few months she did not have a hair on her body, and began to wear a wig. In the following decade she was treated by many physicians, general practitioners, dermatologists, endocrinologists, a psychiatrist, and various "hair specialists". She was given ointments, paints, ultra-violet, various electrical treatments, injections, and a host of internal medicaments. After two years all the hair on her body grew back and attained normal size, colour, and thickness and density, except for the scalp which remained completely bald until 1932.

She was married at the age of 19 ,and at 20 had her first child, and by the time she was 28 years old had completed her family of six children. All the pregnancies and parturitions were normal. She had nursed all her children. She is sure that during all this period the scalp remained completely bald and the body hair normal. Her children and grandchildren have been perfectly normal.

In 1932 she developed four tufts of sparse hair above the temples, and on the left and right borders of the scalp. These finally grew to a length of 8 to 10 inches, at which time she allowed herself to remove the wig, and wear a kerchief, but only in the privacy of her own home. There remained however a complete absence of hair on the rest of the scalp.

This was her condition when I first saw her on April 23, 1949. Physical examination was otherwise completely negative, except for a moderate obesity of normal distribution. She came seeking treatment, not for the alopecia but for a patch of lichen simplex chronicus, which had developed on the frontal area of her scalp, a few days after the accidental death of her husband two months earlier.

I prescribed an antihistamine (pyribenzamine 50 mgm. q.4 h.), vitamin C (Redoxon 100 mgm. t.i.d.), and a lotion of resorcin, boric acid and aqua camphor. She also received two erythema doses of cold quartz ultra violet light on April 23 and May 7, 1949. This cured the neurodermatitis. A month later, she returned with a fine fuzz of hair on large areas of the bald scalp. An ointment of phenol, camphor, salicylic acid, sulphur precipitate and eucerine was prescribed for the scalp. She was ordered to continue the antihistamine and vitamin C and was given three more cold quartz treatments on June 4, 11, and 20, 1949.

I presented her at the February 1950 Meeting of the Section of Dermatology of the Toronto Academy of Medicine, at which time her scalp was covered with hair 4 to 6 inches long except for an area on the right frontal region about two inches in diameter, roughly corresponding to the former area of neurodermatitis, and another larger area behind the left ear. The new hair was normal in thickness and of a reddish brown colour which contrasted sharply with the greying old hair. She had now completely discarded the wig. She also reported that for the first time since her pregnancies, she had missed her menses in June, July and August, but again had normal menstruation in September and October 1949, and none since. She was quite satisfied with her condition but was induced to get 3 more cold quartz treatments, on February 28, March 8 and 20, 1950, and to repeat the previous medicaments. On this last visit, a fine fuzz was noticeable in the bald area on the top of the head.

I did not see her again until April, 1951. Now her whole head was covered with normal reddish brown hair, except for the patch behind the left ear, which was still completely denuded of hair. This spot was completely surrounded with hair because she had also developed hair, up to an inch and a half in length low on both sides of the back of her neck, where she had never had hair even as a child. She had not menstruated since October 1949, and was now complaining of the usual menopausal symptoms. She has gained a great deal of weight but still looks at least 10 years younger than on her first visit.

DISCUSSION

Perhaps the most interesting chapter in the story of baldness is that dealing with the attempts to explain it. It is here that "man's ingenuity is seen at its best, with the result that there is a long list of supposed causative factors for baldness, some based on fact, others seemingly logical, and others again utterly fanciful."[1] Although the question of heredity is in dispute, a review of the literature reveals its presence in 20 to 30% of the cases, and recently Henderson[2] reported two identical twins with lesions of alopecia areata, identical in size, shape and location, which appeared on the same day.

The contagious theory of alopecia areata was in vogue at the beginning of this century, but it is now abandoned by almost everyone. However, the perfectly regular, peripherally spreading, circular lesions resemble those produced by a micro-organism, and an unidentified virus may be the cause, in these cases.

The trophoneurotic theory postulates that alopecia areata is due to disturbances of nutrition, and therefore the function of the hair papillæ as a result of derangement of the trophic nerves serving them. Against this theory is the fact that the areas involved do not correspond with Head's areas. However, many cases have been reported which can be explained only by this theory. Alopecia areata has followed mastoid and sinus operations. Andrews, Domonkos, and Hopper[3] reported regrowth of hair in three cases of alopecia areata 3 to 6 weeks after removal of infected teeth. Grace[4] removed several teeth which were not infected but contained large fillings of silver amalgam, and the patient recovered completely from an extensive alopecia areata of three years' duration. In 1949, Haynes and Parry[5] corrected the refractive errors of 61 cases with alopecia areata. Regrowth of hair

followed the wearing of glasses in approximately three months in all but two patients, without recurrence as long as the error was completely corrected.

The endocrine theory is now the most popular. The endocrines, singly and collectively through their interdependence with the autonomic system, have been blamed for alopecia areata for a long time. Bengson[6] reported success with the use of anterior pituitary extracts over a prolonged period of time, on a group of 16 patients suffering from alopecia areata and totalis. Lord[7] reported similar results in three cases out of five. Jansen[8] claimed some success with the use of progynon-B oleosum in sexually mature women. Gordon and Buschke reported cures of alopecia in young adults with thyroid preparations. A case reported by Ayres and Jensen[9] of otorhinophyma, pruritus, and alopecia totalis, dramatically responded to oral administration of methyl testosterone, for four months.

Recently Walker and Rothman[10] reported a statistical study and consideration of endocrine influences in 230 patients with alopecia areata. In the overwhelming majority of these patients no evidence of endocrine abnormality was found by physical examination or laboratory tests. However, they claim that three observations suggest that endocrine factors may play an accessory or modifying rôle in alopecia areata: (1) Its course is much more severe when it begins before puberty; (2) some individuals with alopecia totalis recover completely during pregnancy and lactation; (3) in some cases, onset of alopecia areata and of thyrotoxicosis is simultaneous. They suggest that endocrine substances act indirectly on the chemical composition of the hair-producing soil.

Waisman and Kepler[11] made a similar study of 138 patients with universal alopecia areata at the Mayo clinic. They reported findings similar to those of Walker and Rothman, but came to the opposite conclusion, namely, "the assumption of an endocrine causation for this condition is unwarranted by the facts".

The importance of the psychological factor, which has probably been overstressed in the causation of many dermatoses, can hardly be overestimated here. That emotional shock may be a direct causative factor in some cases is illustrated by the case, reported by Trepat and Petre,[12] of alopecia areata totalis that resulted from emotional shock suffered by a man when he was terrified when nearly caught in an amorous adventure two weeks before its onset. Wise and Aulzberger in commenting on the above case cite two typical cases of alopecia areata which appeared simultaneously in two survivors of a vessel which was torpedoed and sunk during the night.

Enough has been said to show that the causes to which alopecia areata has been attributed are legion. Probably this is due to the fact that in the majority of cases there is more than one cause in operation and, as Savill[13] states, there may be present, together, a degree of general toxæmia and a source of reflex irritations and, yet until a third factor develops, no symptoms of alopecia may develop. Or again, the toxæmia produced by a septic focus may be unsuspected for years, when it causes no symptoms beyond a readily induced fatigue; then some mental shock—financial or domestic strain, acute illness, or prolonged chill—will precipitate the appearance of some apparently unrelated symptoms, which symptoms may be as far apart as a dilated heart and alopecia areata. Such an involved history has often preceded the appearance of alopecia areata.

What caused the alopecia in my patient is impossible even to conjecture. There certainly is no hereditary history, and the history of endocrine function is normal in every respect. It is also interesting to note that her marriage and pregnancies had no effect on her alopecia or the hair on her body. The first sign of the menopause came three months after her hair began to grow back. She never had a serious illness, and the only emotional shock was the sudden death of her husband only two months before the beginning of the hair regrowth.

Having in mind the spontaneous regrowth of some hair in 1932, we may conclude that the final regrowth was due to the same unknown causes. However, is it a mere coincidence that the regrowth occurred in two stages almost a year apart, and that each followed a course of treatment with cold quartz radiation and oral antihistamines and vitamin C? It is well recognized that ultra-violet stimulates the growth of hair, but it is questionable whether it can initiate its development. The effect of the antihistamine and vitamin C on alopecia areata has not been described to my knowledge, and its mode of action here would be very difficult to explain, unless we

add an allergic factor to the possible etiological factors.

Two more interesting problems arise from this case. How long after complete defluvium is it possible for hair to grow back? And why are the hairs not grey like the old hair (which would be expected at her age)?

With the loss of the hair in alopecia areata, the atrophy of the follicles is progressive and is complete only in a certain number after innumerable attempts at regeneration of the hair contained therein. It may be assumed that when conditions become favourable, these remnants of the follicles, or perhaps the remnants of the papillæ, are capable of reproducing hair which is healthy. The case presented also seems to indicate that these hair root remnants are not only capable of remaining for at least 35 years and then still able to produce healthy normal hair, but are also not affected by the factors causing greyness in the other hair present. This case seems unique in both respects. The regrowth of grey and differently coloured hair is not uncommon, but I have found no description of the converse. The longest period of alopecia areata with successful regrowth of hair that I was able to find (in the literature available to me) was the already mentioned case, reported in 1947 by Ayres Jr. and Jensen, with otorhinophyma, pruritus, and alopecia totalis syndrome, who at the age of 65 recovered from all his symptoms after taking methyl testosterone for only four months. His alopecia was of 15 years' duration. In my case, the hair grew back at the age of 49, after an absence of 34 years.

SUMMARY

A case is presented of a female who developed alopecia areata at the age of 16 years, was married at 19, and had six normal children in the following eight years, without any effect on the alopecia. Four tufts of hair developed spontaneously at the age of 32. At the age of 49 and 50 years, except for a small area behind the left ear, growth of hair, of the same colour as those which originally fell out, ensued all over the scalp, following two courses of treatment, a year apart, with cold quartz, antihistamine and vitamin C. No claims are made for this treatment. A brief review of the etiological factors of alopecia areata is also presented.

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THE PRINCIPLES AND MANAGEMENT OF POSTOPERATIVE CARE*

R. G. B. GILBERT, M.B., *Montreal*

FOLLOWING ALL MAJOR OPERATIONS, not only should the immediate operative site be closely observed but trained personnel should keep the patient under constant surveillance until the blood pressure and pulse are normal and bladder control is established. At the same time body temperature should be maintained as near normal as possible. During this stage, should need arise, measures should be instituted to aspirate secretions and foreign matter from the oropharynx. Posture should be altered with a view to gaining adequate expansion of both sides of the chest and of relieving pressure on certain parts of the body. Personnel administering this care should be trained in the practice of oxygen therapy.

Special operations, as for example gastric operations, urological surgery and neurosurgical procedures, where indefinite periods of unconsciousness might be anticipated, need individual care. A postoperative recovery room is a necessity.

A number of factors are apparent from the simple observations of blood pressure and pulse. From the blood pressure the cardiac output, which itself is dependent upon the cardiac musculature, the diastolic filling of the heart, efficient pressure changes within the thorax and

*Department of Anæsthesia Montreal Neurological Institute and McGill University, Montreal.
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the integrity of the cardiac nerves, can be assessed. Also from the blood pressure, to some extent, can be assessed the volume and viscosity of the circulating blood. While the blood pressure may give clues as to the tone of the blood vessels and of the capillary bed, these factors may influence the pulse rate, from which also can be obtained knowledge of efficient oxygenation of the blood, for which is necessary a normal carrying capacity, a normal respiratory exchange, a normal alveolar-capillary transmission, and a normal carbon dioxide tension.

It can readily be seen then that the efficiency of the cardio-vascular and respiratory systems are interdependent. If the blood is not satisfactorily oxygenated the myocardium will be rendered anoxic, while if the cardiovascular system is not normally established, peripheral vascular collapse may occur and the pulmonary circulation also fail.

The story of postoperative care, however, begins the moment that operation becomes the treatment of choice. All but acute emergencies should be given the benefit of preoperative investigation, in order to check and correct any abnormalities and thereby place the patient in a position where he can better withstand the effects of surgery, anæsthesia, and the interruption of fluid and food intake. By so doing fewer complications will arise in the postoperative period. Similar attention should be paid to the scheme whereby abnormalities are checked and treated the moment they arise throughout the operative period, by whoever is in charge of the anæsthetic and/or the administration of intravenous therapy.

There is no wish to suggest that a laboratory and radiological survey of every patient should supplant the all important clinical examination, supported maybe by years of experience, but it is felt that it is definitely complemental to it. A further point has to be considered, one of economics. Our view is that it is a small price to pay to eliminate conditions which may develop into serious complications and to ensure a safe and smooth recovery.

Prior to any operation it is a wise precautionary measure to ascertain that the patient does not suffer from pulmonary tuberculosis or other chronic chest disease, and to know that the urinalysis is normal. Before the more major procedures it is essential to know that the blood is normal. Its cellular components and its matrix must therefore be investigated. The surgeon can then commence with the knowledge, at the outset of the operation, that the hæmoglobin is normal, the cells, plasma solids, proteins, inorganic and organic salts, the bleeding time and coagulation time are all normal, and that the patient has been grouped for blood replacement.

Certain cases, during the preoperative period, need a far more detailed investigation than others. In comatose patients or in those with dysphagia, pure water depletion or primary dehydration may exist, to these the administration of saline may make them worse, the already elevated plasma chloride and blood urea will further rise and there will be eventual hæmoconcentration.

In patients suffering from severe vomiting or in whom gastric suction has been prolonged, in those with severe diarrhœa or excessive perspiration there may be pure salt depletion or secondary dehydration. In these patients salt must be given to retain the additional water. If it is not given plasma chlorides fall further, hæmoconcentration occurs, the pulse will rise, the blood pressure will fall, and eventually a state of circulatory failure will develop.

In the first instance there is intracellular dehydration, while in the second, maintenance of equilibrium is attempted at the expense of the extracellular fluid.

If in the second group of patients there is no free intake of water, then a state of mixed water and salt depletion will result.

The osmotic pressure in the extracellular fluid is largely produced by sodium and chloride which in like manner is chiefly responsible for the maintenance of the acid-base balance. When the chloride anion is lost, it may, in some measure, be replaced by bicarbonate from carbon dioxide catabolism; whereas the sodium is more important, there being no cation with which to replace it.

Intravenous therapy.—Fluid given should be assessed according to the type, the quantity and the rate of administration. In the normal adult patient who requires intravenous therapy, normal saline should never exceed 1,000 c.c. per day. That is thought by some to be excessive; other fluid available being in the form of 5% glucose and water. Abnormal loss of sodium chloride should be measured and replaced. Such should be organized by clinical judgment aided by biochemical findings.

Modifications must be used according to weight and age of the patient.

Anæmic states.—Acute and chronic states of anæmia should be diagnosed and treated before, during, and after operation. The occurrence of postoperative anæmia and postoperative plethora can be lessened by replacing blood loss in a scientific manner, rather than to rely upon guesswork. In long and hæmorrhagic cases it is necessary always to keep transfusion slightly ahead of blood loss.

During the postoperative period, if the pulse remains high in spite of a normal blood pressure and normal hæmatocrit and in the absence of factors such as sepsis, it usually indicates that the patient has been under-transfused. In this instance oliguria can usually be observed.

Concerning the blood pressure during the operation, unless in special cases where hypotension is being wilfully controlled, the blood pressure should be maintained at or near its normal level. This is especially important in the hypertensive subject when a fall in blood pressure may affect the oxygenation of the brain and the heart muscle, also the renal function.

Blood protein. – Hypoproteinæmia may be assessed by accurate history and clinical examination though the nitrogen balance may also be estimated. This condition may be caused by a decrease in the protein intake such as in œsophageal stenosis, or coma, or in patients with low-protein diet; by failure in absorption or retention, as in vomiting, intestinal obstruction or liver failure; by increased protein metabolism following the trauma of burns or surgery, by hypothyroidism or diabetes, in chronic infections and wasting diseases; by increased loss from hæmorrhage, exudate or kidney disease.

If feeding is at all possible nothing can replace this route for the administration of proteins. The body needs specific proteins which are labile, these being synthesized by the liver from a variety of essential amino-acids.

Should intravenous protein hydrolysate therapy be undertaken, it is difficult to supply enough glucose for energy to prevent utilization of protein for that purpose. The administration of too great a quantity may result in thrombosis and in renal leak, and may produce fever, nausea and vomiting. By this means a further reduction of protein may possibly be achieved but it probably will not correct it. However, there are favourable reports in the literature. Care must be used in administering preparations containing salt, as water depletion may also be present.

Parenteral synthetic amino acids may be more efficacious but they are very costly. Human serum albumen may be of use but it is deficient in both tryptophane and isoleucine. This may certainly be of value if the plasma osmotic pressure is low. Plasma in large quantities might help but there is a danger of serum jaundice, and plasma has a relatively high sodium content.

Whole blood.—The surgically ill patient with malnutrition and hypoproteinæmia who cannot digest food well or tolerate tube feeding responds best to a daily transfusion of fresh whole blood, one litre per day for two or three days prior to the operation. Postoperative convalescence will then be shorter and wound healing be better.

Physiotherapy and instruction. – When indicated, the maintenance of muscle tone and the assistance of venous return should be instituted preoperatively, while breathing exercises commencing before the operation may help patients following operation and prevent complications in the postoperative period. By the same token practice in voiding in the supine position may have advantages later.

Alimentary system.—When confronted with an emergency operation one of the first questions the anæsthetist will ask is, "when was the last meal eaten". In this connection it is worthy to be remembered that in shock cases, or in those in whom there is a severe degree of fear, the stomach does not empty as rapidly as in normal individuals, indeed there may be a delay up to 24 hours. The passage of the stomach tube under these circumstances may prevent complications both during and after operation, especially if it has been decided that a general anæsthetic is the anæsthetic of choice.

Postoperative nausea and vomiting has several causes. Anæsthesia is responsible for some. The more potent the agent used, the higher is the incidence. The use of barbiturates and balanced anæsthesia with the avoidance of anoxia, reduces this to a minimum. This Department has not been impressed by the prophylactic use of antihistaminic drugs in this respect.

Drug sensitivity.—If a patient is sensitive to a specific drug, care must be taken to acquaint all concerned with this fact. For example, nausea and vomiting, which morphine induces in some subjects, can then be avoided.

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Respiratory system.—As far as the respiratory system is concerned much can be done to keep it efficient if thought is given to premedication, the conduction of the anæsthesia, and the early postoperative period. Prophylaxis in the early stages will often prevent trouble later.

Too heavy premedication depresses the respiratory centre; while this is well tolerated in the average-aged healthy individual undergoing short and relatively minor procedures, and while it is indicated in some types of cases, it can be detrimental in others. Premedication should include an effectual dose of one of the atropine group of drugs, especially before lengthy operations. Hyoscine should be avoided in older patients and in those who are psychologically unstable.

Concerning the conduct of the anæsthetic, much could be said which is outside the scope of a round-table discussion. The major points are: firstly, that many of the drugs used in anæsthesia will depress the respiratory centre or the muscles of respiration. When such has been established respiration must be assisted in order to produce good oxygenation and avoid acidosis. Secondly, every effort must be made to prevent ingress of foreign material into the trachea during the stage of induction, during the operation and during the emergent stage. Should it occur immediate treatment must be undertaken. Thirdly, should there be any possibility of the chest being opened during surgery, methods of anæsthesia must be adopted to aid respiration and to control and re-expand a pneumothorax. Fourthly, respiratory obstruction of any type occurring at any level of the tracheo-bronchial tree must be diagnosed and treated at once. Following intubation, proof should be obtained that the tube is in the proper place. Fifthly, the early establishment of the cough reflex, and, sixthly, replacement of rapidly absorbable gases should be aimed at. Finally, it might be stated that it is a wise measure to examine the chest immediately after long operations, especially if it be a thoracic one. This should include rate of respiration, the amplitude, type and symmetry of excursions, while auscultation should be used to eliminate the possibility of atelectasis, pulmonary œdema or collapse.

If there is any degree of atelectasis at this stage a bronchoscopic aspiration by the anæsthetist would seem to be rational. However, an inductional bronchoscopy in likely patients, such as those with bronchiectasis in whom an acute appendicitis has occurred, followed by frequent endotracheal suction throughout the operation should obviate this postoperative bronchoscopy.

In the early postoperative period active measures include: Firstly, the maintenance of a perfect airway with aspiration of the naso- and oropharynx until full control of reflexes has been gained. Secondly, the adoption in certain cases, of a slight Trendelenburg which will aid respiratory exchange, elevate the blood pressure and reduce the possibility of cerebral and cardiac anoxia. Thirdly, by alteration of the posture from side to side good expansion of both sides of the chest should be achieved. Fourthly, oxygen therapy should be instituted if there is any degree of patent or latent anoxia. Oxygen is most simply administered by means of a catheter within the nose lying in the oropharynx, whereby humidified oxygen at a flow of 10 L./min. will produce an oxygen concentration at the carina of 60 to 70%. A higher concentration may be obtained by use of a mask, but this is not so well tolerated by the average patient. An oxygen tent may be employed but this does not produce the high degree of oxygen concentration as in the previous two methods. It has the disadvantage that it needs constant watching in order to be efficient and it sometimes produces nursing difficulties; in some patients it causes claustrophobia. It does however produce an air-conditioned atmosphere of variable temperature, which may be an advantage. Oxygen therapy should be continued until the pulse remains stable. If the pulse rises following withdrawal of oxygen, oxygen should be immediately re-administered.

In cases where there is pulmonary œdema, oxygen should be given under pressure.

Following some types of operation when for any reason respiration is depressed or the diaphragmatic excursions interfered with, intermittent inhalation of carbon dioxide-oxygen mixture will aid in the prevention of atelectasis. By the same token, breathing exercises which have been mentioned before may help in obviating this complication.

One minor point worthy of note concerns an accident which has been reported from many centres and which may easily be avoided. This is the mistake of putting the oxygen supply into the tube maintaining gastric suction. This can be obviated by suitably labelling the tubes, or

by the use of different coloured tubes which are available today.

Finally might be mentioned the use of an early tracheotomy in the event of gross respiratory obstruction, or in certain types of respiratory paralysis, whereby the nursing of the patient is facilitated and the evacuation of secretions made more simple and thorough. This is far better done in the early stage of the postoperative period than delayed until it is absolutely essential.

The earlier complications are diagnosed the more easily they respond to treatment. Prophylaxis with antibiotics will help the control of infection. Atelectasis may respond to simple measures, if not, then intubation with suction or bronchoscopic aspiration may be necessary.

The incidence of postoperative headache can be minimized by the use of fine needles and care with the lumbar puncture. The most intractable cases respond to treatment aimed at re-establishing the dynamics of the cerebrospinal fluid. Concerning the postoperative posture following a spinal anæsthetic, it is felt that no great purpose is fulfilled by maintaining a head-low position for twenty-four hours, rather it is considered that the patient should be placed in his most comfortable position if there are no indications to the contrary.

THE TREATMENT OF TUBERCULOUS MENINGITIS WITH CORTISONE AND STREPTOMYCIN

S. J. SHANE, M.D., F.R.C.P.[C.], F.A.C.P., F.C.C.P.,
R. A. CLOWATER, M.D., C.M. and
CLIFFORD RILEY, M.B., Ch.B.,
Sydney, Nova Scotia

SINCE THE ADVENT of streptomycin there has been a radical change in the prognosis of tuberculous meningitis which, prior to the streptomycin era, was uniformly fatal. At present the mortality, while showing some variation in different reported series, is probably of the order of 50%. Physicians who have had experience in treating this disease, while encouraged by these developments, have welcomed any therapeutic adjuvant which might be expected to increase the recovery rate. It was early realized that patients with tuberculous meningitis on streptomycin therapy die, not from tuberculous toxæmia, but from mechanical obstruction to the circulation of the cerebrospinal fluid resulting from the accumulation of tenacious exudate and tuberculous granulation tissue within the subarachnoid space.

All the newer therapeutic measures, therefore, have aimed at preventing the formation of tuberculous exudate, its dissolution once it has occurred, or the mechanical circumvention of obstruction to the circulation of cerebrospinal fluid. The earliest of these measures involved the intrathecal instillation of a heparin-streptomycin complex[1] and yielded entirely disappointing results. Cathie's[2, 3] work on the intrathecal administration of streptokinase has seemed to offer distinct promise and his methods are rather widely followed in Great Britain. However, the results of the British workers have not been widely confirmed in Canada and the United States, and there are also some doubts as to the safety of this procedure. A recent report[4] attributes the death of a patient to the intrathecal administration of this enzyme, and this result appears to have been duplicated in one of our own cases. Earlier enthusiastic reports regarding the intrathecal instillation of tuberculin[5] have not been widely substantiated, and this procedure, in our own experience as well as that of others, has failed to prevent a fatal outcome. Neurosurgical procedures,[6] which have aimed at the circumvention of subarachnoid block, have not been enthusiastically accepted in all quarters. Reports have reached us of the occurrence of massive cortical hæmorrhages, apparently resulting from the necessarily frequent trauma attendant on the intraventricular administration of streptomycin by these methods and, in one case with which we have had personal experience, ataxia and epileptiform convulsions have been unfortunate sequelæ.

For at least a year our research group has given consideration, in this connection, to the known ability of cortisone to prevent or modify the inflammatory response to infective agents. This suppression of tissue reactivity has been considered to have a harmful effect upon the healing process in pulmonary tuberculosis;[7 to 10] but it is precisely this effect which is theoretically most desirable in the management of tuberculous meningitis. It has been our reason-

ing that the addition of cortisone to a streptomycin regimen in tuberculous meningitis might be expected to prevent formation or effect dissolution of the tuberculous exudate, an objective which has been as yet largely unrealized. As a corollary, of equal or possibly greater importance, such a result might also be expected to remove barriers which stand between the antibiotic and the infecting agent.

Bearing these factors in mind, we have treated a case of tuberculous meningitis with cortisone and intramuscular streptomycin. To date the results have been so encouraging, in fact dramatic, that we have deemed it advisable to submit this preliminary report.

CASE REPORT

O.B., a 28 year old white female, was admitted to Point Edward Hospital on October 1, 1951 with bacteriologically proved tuberculous meningitis. Treatment was immediately begun with our usual intensive regimen consisting of intramuscular dihydrostreptomycin, 2.0 gm. daily; intrathecal streptomycin, 50 mgm. daily; and oral PAS, 12.0 gm. daily. Although clinical improvement occurred rapidly, there was evidence, within two weeks, of the development of a lumbar intrathecal block. By October 26, 1951, the block had become complete, and it was impossible to obtain cerebrospinal fluid except by the cisternal route. On October 29, 1951 a cisternal puncture was performed and 6,000 units combined streptokinase-streptodornase together with 25 mgm. streptomycin were instilled. That evening the patient's general condition became very alarming. Her skin was cold and clammy and her temperature was subnormal. She was semi-conscious and did not respond to external stimuli. Although her pulse was of fair quality she appeared to be moribund and the last rites of her church were administered. During the next 48 hours, however, she rallied slightly, but still remained in a serious condition. On November 1, 1951, cortisone therapy (Cortone Acetate, Merck)* was begun in a daily dosage of 300 mgm. intramuscularly; intramuscular streptomycin and oral PAS were continued. Within 48 hours the patient showed marked clinical improvement and was able to take food in small amounts and liquids freely. Potassium chloride, 3.0 gm. daily, was added to her therapeutic regimen on November 2, 1951. Cisternal punctures have been performed at weekly intervals and the cerebrospinal fluid thus withdrawn has been examined on each occasion for cells, protein and chlorides. On November 1, 1951, the results were: W.B.C., 898 per c.mm.; protein, 82 mgm. per 100 c.c.; chlorides, 660 mgm. per 100 c.c. There has been a gradual but continued improvement in these findings and, on February 4, 1952 the results were: W.B.C., 22 per c.mm.; protein 34 mgm. per 100 c.c.; chlorides, 740 mgm. per 100 c.c. All attempts to culture tubercle bacilli from the cisternal fluid have been unsuccessful.

The first attempt to re-enter the lumbar intrathecal space was made on December 6, 1951, and on this date a very small amount of yellowish cloudy fluid was obtained. Lumbar punctures were repeated at intervals of two weeks, but it was only on January 17, 1952, eleven weeks after cortisone therapy was begun, that a free flow of spinal fluid was obtained by this route. The patient's clinical condition has continued to improve and she now has no symptoms. One week after the crisis, intra-muscular cortisone acetate was replaced by the oral preparation in a dosage of 200 mgm. daily and subsequently decreased to 100 mgm. daily, on which dose she is at present being maintained. With the exception of slight rounding of the facial contours, which has not been striking since the maintenance dose was begun, no evidence of hypercortisonism has been encountered. Repeated x-ray examinations of the chest have shown no evidence of pulmonary tuberculosis.

*The cortisone for this patient was generously supplied by Merck & Co. (Canada), through the courtesy of Dr. John H. Laurie.

DISCUSSION

It would appear that the outstanding deduction to be made from this case report is that the institution of cortisone therapy proved to be a life-saving measure. Another equally striking feature is the partial resolution of the lumbar subarachnoid block which, in our opinion, should be attributed to the cortisone therapy. If this is actually the case, the implication is obvious that the earlier institution of cortisone treatment would have the much-desired effect of preventing the occurrence of block. The dramatic clinical improvement, which has been maintained to date, is obviously a most desirable result of any form of therapy, and particularly so in a disease in which all the patient's resources must be husbanded for a prolonged period of time. We would also stress the point that, paralleling this clinical improvement, there has been a progressive improvement in the cytological and biochemical findings in the spinal fluid. This has occurred in the absence of intrathecal therapy and, judging from our own experience, is at least equal in degree to that resulting from any intrathecal regimen. This is a highly important consideration, especially where block has already occurred and intrathecal treatment has become impossible except via the cisternal route which, in our experience, is not without danger.

It is of interest that, on admission, this patient showed no evidence of pulmonary tuberculosis and that no such evidence has appeared since the institution of cortisone treatment. It is possible that the presence of associated pulmonary tuberculosis, miliary or otherwise, might give rise to hesitation in prescribing cortisone therapy. It is our opinion, however, that the concomitant administration of full doses of streptomycin and PAS should provide adequate insurance against any such extension of tuberculous disease.

It is quite clear that the present situation provides no assurance that relapse will not occur when cortisone therapy is discontinued. It is our hope, however, that, by very gradual withdrawal of cortisone together with prolonged administra-

tion of streptomycin and PAS, such an exacerbation will be avoided. A progress report, together with results of this form of combined therapy in other cases, will form the basis of a subsequent communication.

It is of interest to theorize as to the cause of the sudden deterioration of this patient's condition immediately prior to the institution of cortisone treatment. There is published evidence, again substantiated by our own experience, that untoward reactions have been encountered following the intrathecal instillation of both streptomycin[11] and streptokinase-streptodornase.[4] Any form of therapy, therefore, which renders unnecessary the intrathecal administration of either agent would appear to constitute an important therapeutic advance.

PROGRESS NOTE

A progress note in April, 1952 shows the patient to be in good health, with no x-ray evidence of pulmonary tuberculosis. Cisternal punctures are within normal limits, except for 10 to 20 W.B.C. Lumbar punctures also show 34 W.B.C., with 280 mgm. of protein and 680 mgm. of chloride.

SUMMARY

1. A case of tuberculous meningitis is reported in which the addition of cortisone to the streptomycin regimen resulted in dramatic and continued improvement in both the clinical condition and the cerebrospinal fluid findings.

2. The partial resolution of an established intrathecal block was apparently accomplished by this treatment.

3. The theoretical considerations underlying the administration of cortisone in tuberculous meningitis are discussed.

NOTE.—In a "Morning Lecture" entitled, "The Clinical Application of Pituitary Adrenocorticotropic and Adrenal Steroid Hormones," delivered at the 1951 Annual Meeting of the American College of Physicians, and later published (*Ann. Int. Med.*, 35: 615, 1951), Dr. Laurance W. Kinsell briefly outlined his experiences in two cases of tuberculous meningitis treated with ACTH. These experiences appear to be quite similar to ours with cortisone.

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Point Edward Hospital

AN ARTIFICIAL BILE DUCT*

JAMES R. McCORRISTON, B.A., M.D., C.M., M.Sc., F.R.C.S.[C.] and
DAVID W. MacKENZIE, Jr., M.A., M.D., C.M., D.Sc.(Med.), *Montreal*

A SEARCH OF THE LITERATURE concerning transplantation of skin revealed no record of its application in the reconstruction of tubular structures within the abdomen. In view of the success of MacLean and Gerrie[1] in the replacement of portions of the male urethra by split thickness grafts it seemed reasonable to suppose that skin might be so used, especially in the reconstruction of portions of the biliary tract. Our preliminary report[2] covers the earliest results of this experiment.

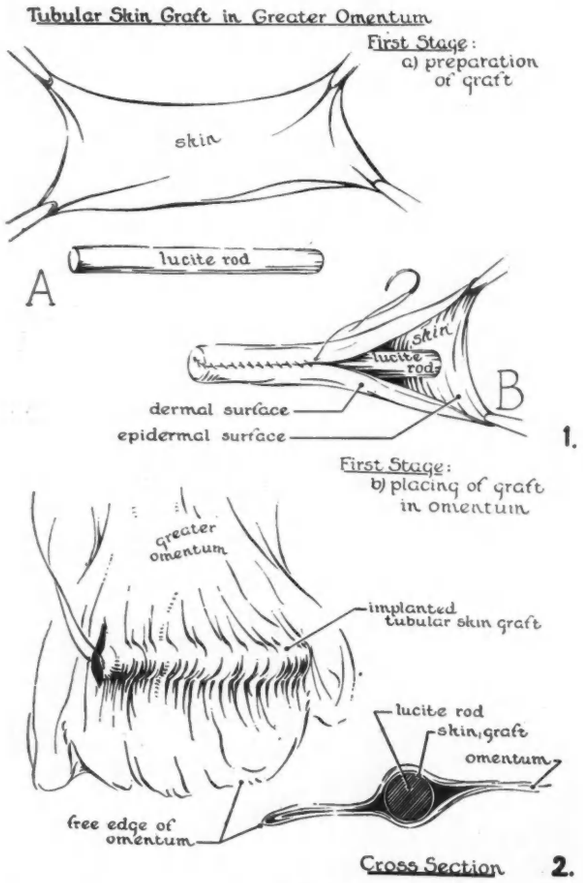
Several investigators have studied the fate of buried skin for periods of several years. Peer and Paddock[3] examined specimens of skin buried subcutaneously at intervals of one week to one year. Mair[4] used whole thickness skin grafts in the repair of herniæ in man and studied specimens excised at various intervals after implantation. Uihlein[5] described tissue from an area where skin had been used four years previously in the repair of a hernia. The above reports, concerning the fate of buried skin, include observations which differ from one another although the conditions under which they were made were similar. Mair and Uihlein noted eventual metaplasia of buried skin, whereas Peer and Paddock recorded survival of skin elements over equally prolonged periods. These reports agree, however, in one important respect, that buried skin heals on its dermal aspect to the tissue bed in which it is implanted and acquires a rich vascular supply.

Price and Lee[6] planted free full thickness skin grafts on the anterior serosal surface of the stomach and on the parietal peritoneum near the stomach. Later they implanted these grafts, with their new blood supply intact, in windows in the

*From the Experimental Surgical Laboratories, McGill University and the Department of Surgery of the Royal Victoria Hospital, Montreal.

stomach and observed the effect of gastric digestion upon them. Partial digestion occurred, but islands of residual epithelium could be found histologically after two months. This finding indicates that skin has some degree of resistance to the corrosive and digestive action of gastric juice. It is felt that this resistance of the skin was due to the fact that it had a good blood supply, for free skin placed in the stomach is digested.

The following report is confined to a description of experiments in which skin-lined tubes in the greater omentum were used to conduct bile



from various points in the biliary tract into either the duodenum or jejunum.

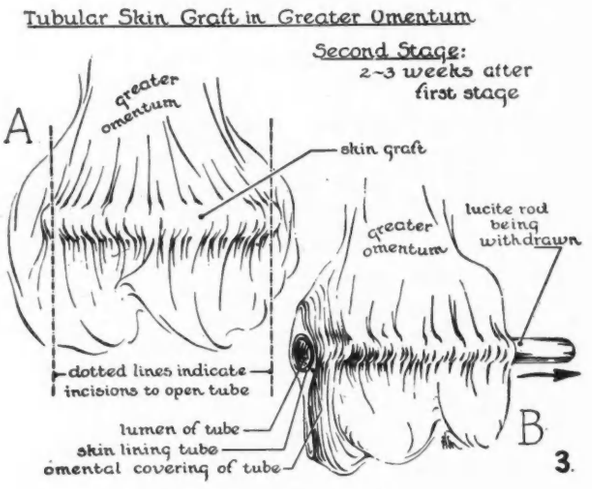
METHODS

The dependent edge of the greater omentum was chosen as a bed for the grafts because of two important characteristics, rich vascularity and free mobility. Anastomoses of the skin-lined tubes to hollow viscera were carried out in two layers, mucocutaneous and sero-seromuscular.

A. *Implantation of tubular skin grafts in the greater omentum.*—Rabbits and dogs were used. All operations were performed with general anæsthesia and aseptic technique.

In order to construct a tube, a rectangular skin graft was sutured about a lucite rod with the epidermal surface next the rod and the dermal surface exposed (Fig. 1). The tubular graft, with its lucite splint, was then embedded in the greater omentum through a small incision in one of its layers. The delicate omentum adhered readily to the dermis of the graft (Fig. 2). Specimens were recovered at intervals of 11 to 34 days after implantation.

B. *Conduction of bile by means of skin-lined tubes in the greater omentum.* — Second stage operations were performed upon one rabbit and a number of dogs to test the function of the preformed, skin-lined tubes in conducting bile. In general, this operation was carried out between two and three weeks after the first stage.



The tube was prepared by amputating each closed end to expose the lucite rod splint. The rod was then removed and the lumen of the tube flushed out with saline solution to remove accumulated desquamated debris (Fig. 3). In small animals the tube was anastomosed to the gall bladder at one end and to either duodenum or jejunum at the other. The common bile duct was then doubly ligated and divided, to ensure passage of all the bile through the skin-lined tube. In larger dogs, with larger bile ducts, the common duct was divided just distal to the origin of the cystic duct and its distal end ligated. The proximal end was then anastomosed to one end of the skin-lined tube. The other end of the tube was anastomosed to either duodenum or jejunum.

These animals were observed for varying periods of time before being sacrificed for examination of the parts involved.

Results

In Table I is shown a summary of the experiments. The last column describes briefly the result in each experiment and its duration from the time of the second stage operation. In twelve experiments (4 rabbits and 8 dogs), in which implantation of a tubular skin graft in the greater omentum was carried out, the skin survived, became firmly healed in its omental bed and did not give rise to gross infection.

Fig. 4 is a photomicrograph showing a section of the wall of the tube 34 days after implantation of the graft in the greater omentum of a rabbit (rabbit No. 1). Marked vascularity of the dermis is obvious. The epidermis has survived and there is no evidence of inflammation.[2] Figs. 5 and 6 show sections of the tubes of dogs 5 and 6 at the time of the second stage operation. They exhibit essentially the same features as those demonstrated in Fig. 4.

In one rabbit and eight dogs the tube was used to conduct bile in one or other of the manners described (Table I). Rabbit No. 3 and dogs No. 3, 7 and 9 died 2, ½, 9 and 4 days, respectively, after the second stage operation. In all of these, postmortem examination showed the anastomoses to be intact and patent, without leakage of bile into the peritoneal cavity. Rabbit No. 3 and dog No. 7 died of pneumonia, dog No. 3 died of the effects of an anæsthetic, and dog No. 9 of an abdominal wound infection (Table I). The periods of survival after the second stage operation in these four instances were too short to provide useful information regarding the fate of skin-lined tubes conducting bile.

The tube of dog No. 1, examined 20 days after implantation of the full thickness graft, showed patchy areas of loss of epidermis although all the dermis had survived (Fig. 7). Following the first operation there was a rather severe wound infection and this had extended into adhesions between the wound and the greater omentum covering the tube. A moderate degree of fibrosis had developed in the areas adjacent to the inflammatory process. This animal developed slight jaundice on the 24th day and was sacrificed 28 days after the second stage operation. The diameter of the tube was found to have decreased from 4 to 2 mm. during the 28-day period in which it conducted bile from the gall bladder to the jejunum. Considerable epidermal regeneration had occurred in spite of continued exposure

TABLE I.

Experimental Use of a Skin-Lined Tube in the Greater Omentum

Rabbits					
No.	*1st stage*	*2nd stage*	*Interval*	*Type of op.*	*Results*
1	Dec. 11/47	Jan. 14/48	34 days	Biopsy	Healthy, skin-lined tube.
2	Feb. 6/48	Feb. 23/48	17	Biopsy	Healthy, skin-lined tube.
3	Feb. 18/48	March 12/48	23	Gall bladder to jejunum	Died of pneumonia on 2nd day, anastomoses intact.
4	March 9/48	March 20/48	11	Biopsy	Healthy, skin-lined tube.
Dogs					
1	March 17/48	April 6/48	20	Gall bladder to jejunum	Sacrificed at 28 days; wound infection; partial biliary obstruction.
2	April 12/48	May 3/48	21	Bile duct to duodenum (2nd part)	Sacrificed at 55 days; wound infection; incomplete biliary obstruction.
3	April 19/48	May 5/48	16	Gall bladder to jejunum	Died on 1st day, of the effects of the anæsthetic.
4	———	———	—	———	Anæsthetic death at first stage operation.
5	April 30/48	May 19/48	20	Bile duct to duodenum (1st part)	Sacrificed at *215* days. Normal serum bilirubin throughout. Bile duct epithelium lining tube. Cirrhosis of liver. No biliary stasis.
6	May 26/48	June 10/48	15	Gall bladder to jejunum	Sacrificed at *193* days. Normal serum bilirubin throughout. Epidermis lining tube. Very mild cirrhosis of liver. No biliary stasis.
7	June 1/48	June 17/48	16	Gall bladder to jejunum	Died of pneumonia on 9th day. Anastomosis intact and patent.
8	June 4/48	June 22/48	18	Gall bladder to jejunum	Sacrificed at *246* days. Normal serum bilirubin throughout. Epidermis lining tube. Mild cirrhosis of liver. No biliary stasis.
9	June 8/48	June 23/48	15	Gall bladder to jejunum	Died of abdominal wound infection with abscess on 4th day. Anastomoses intact and patent.

to bile (Fig. 8). Several small concretions were adherent to exposed silk sutures at the jejunal end of the tube .

Although healing eventually occurred, severe abdominal wound infections followed both operations upon dog No. 2. It was technically very difficult to anastomose the tube to the tiny bile duct (diameter 4 mm.). Jaundice appeared on the 21st day and serum bilirubin levels at intervals indicated progressive biliary obstruction. This was confirmed at autopsy after sacrifice of the animal on the 55th day. The tubal lumen was approximately 3 mm. in diameter, except at its ends where zones of scar tissue were present, causing further constriction.

Three experiments (dogs Nos. 5, 6 and 8) are of greater importance because of the long

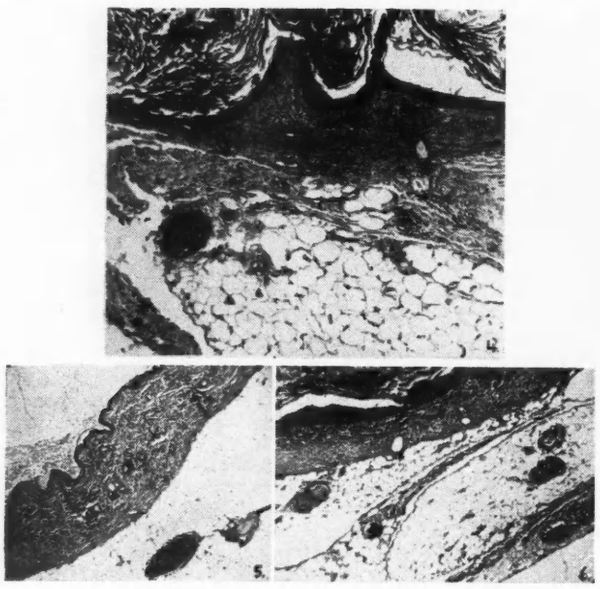
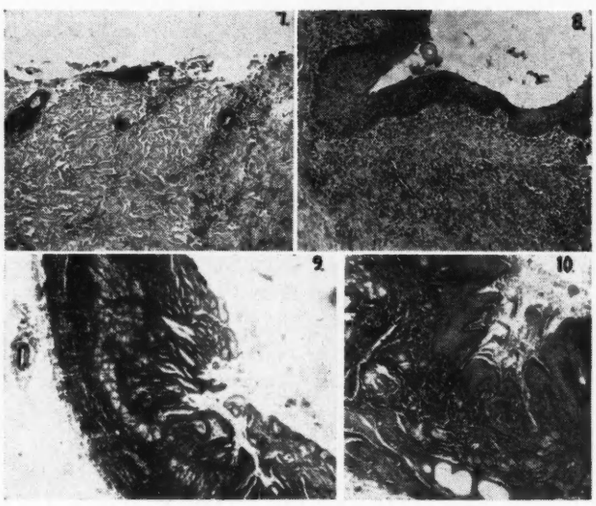


Fig. 4.—Tubular, split thickness skin graft 34 days after implantation in the greater omentum of Rabbit No. 1. Note vascularity of the dermis, absence of inflammatory reaction and survival of epidermis. **Figs. 5 and 6.**—Show essentially the same features.

periods during which they were observed. Wound infection did not complicate these cases, and biliary obstruction was excluded by monthly serum bilirubin determinations and postmortem examination of the ultimately sacrificed animals. All three developed a mild degree of cirrhosis of the liver but no biliary stasis was evident in the tissue sections. Dog No. 8 gave birth to a litter of pups on the 40th day after the second stage operation.

Microscopic examination of the artificial bile duct of dog No. 5 (Fig. 9) revealed that it had not retained its epidermal lining or its skin appendages except for one nest of sebaceous glands and a partial epidermal lining at the intestinal orifice of the tube where a few hair follicles remained. The tube was lined chiefly by *biliary duct-epithelium*. There was a mild chronic exudative inflammatory process, which was also seen in the wall of the cystic duct and gall bladder. Pericholangitis was absent.

Microscopic examination of the artificial bile ducts of dogs Nos. 6 and 8 revealed essentially the same features (Fig. 10). These ducts retained a well-preserved epidermal lining and thick collagenous wall in which were hair follicles, sebaceous and apocrine sweat glands together with bundles of smooth muscle. There was some inflammatory reaction in and beneath the duct lining, and a mild intrahepatic pericholangitis and fibrosis without biliary stasis.



In all three instances the tube had decreased in length and diameter, but at no point was its lumen smaller than 2 mm. (original diameter 7 mm.).

Discussion

Skin implanted in the greater omentum fuses readily with its intra-abdominal bed. Such grafts heal along lines of junction between skin edges. When the graft is implanted in tubular form healing results in a tube with a continuous lining of skin. Rich vascularization of the dermis proves that the nutrition of the graft is well maintained by the omental circulation.

Healthy, living skin has sufficient resistance to survive in the presence of bile. It was noted in one instance (dog No. 1) that, although its epidermis was ulcerated at the time of the second stage operation, new epidermis had re-

generated to the point of a nearly complete lining within a period of 28 days.

Since bile leakage was not observed it appears that the two-layer suturing technique of anastomosis of the tube to hollow viscera is adequate. In order to minimize foreign body reactions and consequent fibrosis, absorbable suture material should be employed.

Split thickness are preferable to full thickness grafts because they are more likely to *take*. The grafts should be thin (*e.g.* 0.010 inch) so as to exclude the greatest possible amount of elastic tissue and other accessory skin structures. Buried hairs may stimulate a severe foreign body reaction.

Wound infection was a serious complication in three of our experiments. It delayed healing of free skin grafts in their beds and resulted in proliferation of constrictive fibrous tissue.

Examination of skin grafts in the omentum did not reveal gross changes in the microscopic appearance of the skin within periods as long as 34 days. No metaplasia was seen. At the second stage operation very little inflammation was observed in the skin-lined tubes of animals that had not experienced wound infections. The dermis and adjacent omental tissue was infiltrated by only a few foreign body giant cells and lymphoid cells. The zone of fibrous tissue between the dermis and omental tissues was very narrow and in places scarcely visible.

Wound infection was chiefly responsible for the partial biliary obstruction with jaundice which developed in dog No. 1 and dog No. 2 at 28 and 55 days, respectively. In both instances silk suture material was used in the anastomosis of the tube to the biliary tract and to the intestine.

Examination of the tubes of dogs Nos. 5, 6 and 8, which had conducted bile for 6 to 8 months, revealed uniform diminution in the diameters of their lumina. Additional constriction was apparent at the sites of their intestinal anastomoses. In these animals the inflammatory process in the walls of the biliary passages was the result of an ascending cholangitis in the absence of the protection normally afforded by the sphincter of Oddi. It is regrettable that none of these animals had a bile duct of sufficient calibre to permit replacement of a segment of the duct by a skin-lined tube in the presence of an intact sphincter.

Cirrhosis and cholangitis was most obvious in the animal (dog No. 5) in which a choledochoduodenostomy was made. In this case also the epidermal lining of the tube was almost completely replaced by biliary duct epithelium. In contrast, there was excellent preservation of the epidermal lining of the tubes in dogs Nos. 6 and 8, which were anastomosed to the jejunum. It seems probable that, had dogs Nos. 5, 6 and 8 been observed for much longer periods of time, at least partial biliary obstruction would have developed because of the presence of a mild, chronic inflammatory process in the walls of the biliary tree.

CONCLUSIONS

1. Free skin grafts survive when implanted in tubular form in the greater omentum of rabbits and dogs.
2. Tubular skin grafts in the omentum heal to form tubes with a continuous lining of skin and a mobile vascular pedicle.
3. Such tubes resist exposure to bile.
4. Regeneration of damaged epidermis may take place in the presence of bile.
5. Skin-lined tubes have been observed to function as biliary ducts for as long as 8 months without the development of biliary obstruction or stasis.
6. Mild to moderately severe hepatic cirrhosis and pericholangitis are likely to develop within 6 to 8 months in dogs whose biliary tracts are deprived of the sphincter of Oddi.

The authors are most grateful to Dr. W. H. Mathews, Associate Pathologist to the Montreal General Hospital, for his assistance in interpreting the microscopic sections described in this paper.

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Pericarditis is one of the most commonly overlooked clinical conditions. In recent years bacterial pericarditis, including the tuberculous type, has decreased, while pericarditis secondary to cardiovascular disease, uræmia, and malignancy has increased with the increase in the life span of the population.—G. R. Herrmann, *Am. Heart J.*, 641: 43, 5, 1952.

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SOME OBSERVATIONS ON STAPHYLOCOCCI AND THEIR RESISTANCE TO ANTIBIOTICS*

G. B. LEYTON, M.A., M.D.(Cantab.), D.C.P.(Lond.),† *Winnipeg*

FOR MANY YEARS staphylococcal cross-infection has been a serious problem in hospitals and similar institutions. With the advent of chemotherapy and later with the introduction of penicillin the problem became temporarily less obvious. However, it was soon realized that all strains of staphylococci were not equally sensitive to the action of penicillin. From 1946 onwards much work has been done on penicillin-resistant strains of staphylococci. Complete descriptions of the types of resistance encountered have been given by Barber[1 to 4] and Beigelman and Rantz.[5]

While there is as yet no complete unanimity of opinion, it appears to me that the published work proves beyond all reasonable doubt that the increase in the number of strains of staphylococci whose resistance to penicillin makes therapy with this drug unsuccessful has been due to the selective action of the antibiotic and that this agent acts in most cases by removing the sensitive strains and allows a proportionate increase in the naturally resistant organisms rather than by inducing resistance in staphylococci which were previously sensitive to the chemical. The rapid spread of the resistant strains occurs as a result of cross-infection within the hospitals.

Penicillin-resistant strains of staphylococci presented a major problem in Manitoba as early as 1948 and for this reason it became customary in this province to treat the majority of staphylococcal infections with aureomycin early in 1949. At this time breast abscesses and pyodermia of the newborn were very prevalent in Winnipeg. As a result, aureomycin was widely given both for the treatment of these infections and in an effort to reduce the carrier rate amongst the hospital staffs. In addition it was given to every newborn baby in certain hospitals as a prophylactic with the intention of preventing pyodermia in infants and breast abscesses in their mothers (McGuinness,[6] Colbeck[7]). This wide usage of aureomycin gave the staphylococci a good chance to show their adaptability.

From early 1949 most staphylococci isolated in Manitoba were sent to the Provincial Laboratory for phage typing and testing of their sensitivity to antibiotics. The most complete figures available are for the sensitivity of coagulase-positive staphylococci to penicillin and aureomycin. An organism in this article is considered sensitive to an antibiotic when its growth is inhibited by a concentration of the antibiotic not exceeding sixteen times that required to inhibit the growth of Oxford staphylococcus, the results being judged by comparing the growth obtained after twenty-four hours' incubation at 37° C. in tubes of broth containing increasing concentrations of the antibiotic and an inoculum of approximately one hundred thousand organisms of an eighteen hour culture.

TABLE I.

Date	*No. of specimens*	*Percentage sensitive to penicillin*	*Percentage sensitive to aureomycin*
1949			
May	296	51	99
June	305	61	99
July	211	65	99
August	167	51	99
September	126	57	99
October	138	50	99
November	133	56	100
December	77	42	100
1950			
January	96	61	100
February	62	59	100
March	221	33	82
April	104	41	80
May	84	25	63
June	180	11	89
July	153	5	95
August	61	24	93
September	164	38	90
October	229	35	87
November	162	38	75
December	70	47	73
1951			
January	83	40	74
February	136	40	72
March	254	33	81
April	173	26	69
May	153	37	83
June	155	25	54
July	91	39	68
August	113	41	79
September	156	31	63
October	130	46	65
November	163	46	78
December	103	42	79

Table I shows the number of specimens received and the percentage sensitive to penicillin and aureomycin month by month from May, 1949 until December, 1951.

Table II shows the similar figures by years.

If these tables are examined it will be noticed that throughout 1949 between 50 and 60% of staphylococci isolated were sensitive to peni-

*From the Provincial Laboratory, Winnipeg, Manitoba.
†Director of the Provincial Laboratory, Winnipeg, Manitoba.

cillin and to all intents and purposes 100% sensitive to aureomycin, and this position with regard to aureomycin continued until February 1950. During the two and one-half years that are shown in the table there has been a slow but steady decrease in the number of staphylococci which are sensitive to penicillin and at the same time a greater decrease in the number of organisms sensitive to aureomycin. It is interesting that the resistance to aureomycin commenced rather suddenly in March of 1950 and although from this time there have been some small fluctuations

TABLE II.

Year	*No. of specimens*	*Percentage sensitive to penicillin*	*Percentage sensitive to aureomycin*
1949	1,454	50	99
1950	1,424	47	77
1951	1,710	39	72

the general trend has been an increase in the number of resistant strains. The yearly table perhaps shows this more clearly than the one given month by month.

Table III shows the percentage of staphylococci sensitive to chloromycetin, terramycin and streptomycin for the past ten months.

Chloromycetin became available late in 1949 but it was not much used until the end of 1950. The figures for 1951 show that as yet not very many staphylococci resistant to chloromycetin have been observed and that the sensitivity of the staphylococci in this area to streptomycin remains in the neighbourhood of 90%. This is probably due to the scanty use made of this drug in Manitoba outside sanatoria. The percentage of organisms sensitive to terramycin has been, since testing commenced in this laboratory, slightly lower than for aureomycin and was so even before terramycin became freely available in the area. This result might have been anticipated since by the methods employed in this investigation it requires approximately twice as much terramycin to inhibit staphylococci as it does aureomycin although we have not found this to be the case for our control organisms. Terramycin had not been extensively used at the beginning of the investigation and even now is not very widely employed, thus the resistant strains have not been brought about by the use of terramycin. *In vitro* tests carried out in the laboratory suggest that the action of aureomycin and terramycin on staphylococci are very closely related. It seems likely that the use of aureomycin has by selection or otherwise raised the number of organisms resistant to terramycin. In the present investigation no evidence has appeared to suggest that there is any related sensitivity in the case of staphylococci between terramycin and aureomycin and the other three antibiotics examined, nor is there evidence of related sensitivity between penicillin, streptomycin and chloromycetin.

TABLE III.

No. specimens tested		*Percentage sensitive to chloromycetin*	*Percentage sensitive to terramycin*	*Percentage sensitive to streptomycin*
1951				
March	56	100	68	100
April	153	97	71	92
May	196	90	62	88
June	155	74	55	97
July	91	80	62	88
August	113	90	79	87
September	156	96	61	97
October	130	88	76	95
November	163	94	76	92
December	103	96	66	90

Table IV shows the phage type and the number of organisms sensitive and resistant to each antibiotic.

TABLE IV.

Phage group	*Penicillin*		*Aureomycin*		*Terramycin*		*Chloromycetin*		*Streptomycin*	
	Sens.	*Res.*	*Sens.*	*Res.*	*Sens.*	*Res.*	*Sens.*	*Res.*	*Sens.*	*Res.*
7/47B	21	49	10	11	10	11	29	14	37	2
51	10	2	11	1	11	1	12	0	12	0
939	25	18	33	10	32	11	35	8	41	2
977/1272N/1791/W	58	50	80	28	79	29	90	18	105	3

This shows quite clearly that there is no straightforward relation between sensitivity and phage type and one must conclude that there are potentially resistant organisms in all phage types of staphylococci.

During the course of this investigation one hundred strains of staphylococci obtained from patients at the time of admission to hospital or from other sources were examined and found to be of a wide variety of phage types. Ninety-

five were sensitive to penicillin and 99 were sensitive to aureomycin, even though at this time 50% of the staphylococci isolated from hospital staffs, patients' noses and throats who had been in the hospital for some considerable time, and other lesions were resistant to penicillin, and 25% were resistant to aureomycin.

DISCUSSION AND SPECULATION

It appears that the pattern of resistance which has developed in Manitoba to aureomycin and terramycin over the last two and one-half years and which is probably developing to chloromycetin at present is very similar to that described for penicillin alone elsewhere. This high incidence of antibiotic resistant organisms, present in hospital cases and hospital staff and not in the general population, must have an explanation and the most likely one is that of cross-infection. The occurrence of antibiotic-resistant members of all the phage types examined makes it clear that either phage typing or antibiotic sensitivity tests are valueless for tracing cross-infection. Classically one would trust phage typing but it is apparent that much more investigation is required before this question can be settled. It is very difficult *in vitro* to induce a resistance increase of sixteen-fold by accustoming fully sensitive staphylococci to either aureomycin or terramycin or chloromycetin, and it seems rational to conclude that either resistance to the antibiotic is not strain specific or that phage typing is less strain specific than is generally supposed. It is not impossible that both of these suppositions may prove to be true.

From a practical aspect this investigation suggests that it is likely that, however many antibiotics we produce, resistant strains of staphylococci will appear and that every effort should be made to cut down the spread of resistant organisms; whether the fact that in certain cases staphylococci grown in one antibiotic may become more sensitive to another and that penicillinase production appears to be inhibited by growing staphylococci in aureomycin can be used to advantage in clinical treatment for the reduction of resistant strains, remains to be seen. This investigation which has shown an increase in penicillin-resistant strains, the majority of which are penicillinase-producing, in an area where for the last two and a half years aureomycin has been used more than penicillin for the treatment of staphylococcal infections does not seem to offer much hope of this desirable experimental phenomenon occurring in practice. In general, in view of the fact that out of the five antibiotics in common use so far cross-resistance is present in only two, the outlook is not as black as it has frequently been painted and it would appear to be unlikely that a race of staphylococci which is resistant to all our therapeutic agents at high concentration is yet in sight. Even so it is evident that the medical profession must resign themselves to an increasing number of resistant strains of coagulase-positive staphylococci, but by selecting with care the cases to be treated with antibiotics it should be possible to keep these sufficiently infrequent to insure that when a serious infection occurs the physician has a weapon to use. If the antibiotics are given indiscriminately as a prophylactic measure and used when they are not really necessary while their limitations are not understood, an ever-increasing number of resistant strains may appear and be spread by the hospital staff throughout most hospitals and more slowly through the population in general. If this should occur serious staphylococcal infections may once more become the menace they were before the introduction of penicillin.

SUMMARY

The development of staphylococci resistant to aureomycin is described

Their resistance to terramycin is noted.

Cross-infection and the use of antibiotics is discussed.

Much of this work was performed with the money supplied through a Federal Health Grant to the Provincial Laboratory, Winnipeg. I am indebted to the technical staff of the Provincial Laboratory for help with much of the arduous practical work and to Messrs. Lederle for crystalline aureomycin, Messrs. Parke Davis for samples of crystalline chloromycetin, and Messrs. Pfizer for crystalline terramycin.

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PSYCHOGENIC FACTOR IN MIGRAINE*

C. J. MALLOY, B.A., M.D., C.M., F.R.C.P.[C.]†, *Montreal*

THE CONSENSUS of the present day is that migraine is a syndrome with several causes. The importance of heredity is universally admitted, the disease being probably transmitted as a Mendelian dominant.[1] There is, however, disagreement as to the relative importance of four groups of factors, the allergic, the endocrine, the gastro-intestinal and the psychogenic among the proponents of each group.

Unger[2] has stated that after long experience with allergy tests and elimination diets, he feels true migraine is certainly due to allergy to some food or foods, the elimination of which will lead to cessation of attacks. He does not deny the existence of other factors, including the psychogenic, but considers these of little importance when the allergic factor is controlled. Association of migraine with the ovarian cycle is reported by some authors as high. Use of thyroid extract in cases with low basal metabolic rates has resulted in definite improvement in some cases, others have been benefited by a change to either a low carbohydrate or a protein-free diet.[1, 3]

Association of migraine with gastro-intestinal disease has been reported by many authors. Ross and McNaughton,[4] in a Rorschach study of 50 migraine sufferers, found evidence for the personality characteristics of perfectionism, inflexibility, conventionality, intolerance, persistence towards fixed goals and difficulty in sexual adjustment, but were unable to find evidence of resentment, a characteristic noted by many authors who refer to the psychogenic factor of migraine. The authors state, however, that there is probably no recognized sign in Rorschach interpretation for the detection of resentment.

Marcussen and Wolff[5] reported cases in which increased stress and tension were shown to produce migraine, and others in which personality changes due to aging or, as in one case, to the cerebral damage of lues, eliminated the need for compulsive behaviour which had previously led to headache. Friedman and von Storch[6] state that while for relief of acute attacks of migraine ergotamine or some modification such as cafergot is 85 to 90% effective, for prevention of attacks psychotherapy holds greatest hope. They do not particularize.

Whether or not allergic, metabolic, gastro-intestinal, endocrinological and psychogenic factors can co-exist in the same case, and if so, if the etiological composition in a case varies from attack to attack and from case to case, is difficult to decide. Theoretically it is possible. The psychogenic or other recognized factors might therefore, in percentage contribution to headache, in any case and in any attack, be thought to vary from zero to a very high percentage figure.

The following case is of interest because, through insight into the emotional factor in her migraine headaches, the patient learned to prevent headaches at will as soon as the prodromal eye signs appeared. She reports that during the latter six months of two pregnancies the exercise of insight was unnecessary as she suffered no prodromal eye signs. This change was not permanent as two months or so after parturition the prodromes occurred again. Before she gained emotional insight she was having severe headaches every two or three days. The manner in which she achieved insight is described below.

CASE REPORT

Mrs. J.S., was aged 35 years at the time of the onset of migraine. Two months before she had given birth to her first child. The patient was the eldest of four girls; one sister had had migraine since her early teens. One maternal aunt and two paternal aunts had had migraine. Her mother was alive and well; at the time of onset of migraine her father was aged 63 years and had coronary heart disease and arterial hypertension. Apart from migraine there was a negative family history for allergic disease. The patient's labour had been normal and her child was progressing well. The first hemicranial headache was preceded by scintillating flashes of light lasting three-quarters of an hour, and the headache was severe, lasting about six hours, subsiding thereafter without medication. Nausea was slight in this instance. There was no recurrence for two months when a second severe attack occurred. Subsequently, headaches began to occur frequently, with typical prodromes and accompaniments, *i.e.*, severe left-sided headache with nausea and occasional vomiting, preceded by blurred vision with light flashes. The headaches gradually increased in frequency and severity and at the start of therapy they were occurring every two or three days.

At this time her husband was also undergoing treatment by the author for an anxiety state. He preferred treatment by a physician to treatment by a psychiatrist, since many of his symptoms were physical and the irregular spacing and frequent necessary curtailment of interviews were thought to militate against the probable success of psychiatric treatment. Treatment was largely by discussion and supportive therapy, no formal psychiatric techniques being employed. As the discussions progressed, it gradually became evident that he was resentful of many persons and situations and particularly of his wife. Analyzing the reasons for the resentment it

*From the Department of Medicine, McGill University.
†Lecturer in Medicine.

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eventuated that it was partly due to the environment of his childhood and youth differing so vastly from his adult environment which he had accepted for social and economic reasons and because it was his wife's choice, but had never accepted emotionally. The resentment was partly expressed but largely suppressed, because of fear of loss of respect and affection. It further eventuated that abnormal dependence on his parents and elder brother was followed by abnormal dependence emotionally upon his wife and one or two other persons. It was evident that his resentment was strongest against those upon whom he was dependent. Gradual improvement in his condition occurred over the course of several months. It was finally evident that the causal chain of his anxiety could be expressed thus: emotional dependence, insecurity, resentment, further insecurity, anxiety.

Husband and wife had discussed his treatment as it progressed over the months. When he was sufficiently recovered to discontinue regular interviews, her migraine being severer than ever, she consulted her husband's physician for the first time. Her medical history has been outlined. Physical examination and special tests revealed nothing noteworthy. She responded to dihydroergotamine and to ergotamine by injection for relief of headache but was refractory to other symptomatic treatment. There was no suggestion that her headaches were of the histaminic cephalalgic type. Her husband's known emotional dependence upon her had stimulated thought along these lines and the informal discussions she had had at home with him she now pursued with herself as the subject, in her later visits to the physician's office.

There was no definite suggestion that anything might eventuate from this which would benefit her migraine. Dependence upon anyone seemed on the surface antithetical to what was apparently her natural self. She had, however, an unusually strong attachment to her father. Her admiration for him was intense. She had unconsciously imitated him in many ways, to the extent of choosing a career as similar to his as possible. She was indifferent, if not antipathetic or hostile, in her unconscious attitudes to her mother. Her father's illness of several years' duration had reached a crisis at about the time of the onset of her headaches and it appeared that he had not long to live. Analyzing this situation and her attitudes to her husband in discussions over the course of several months, she was amazed to learn that, probably due to the alteration in her father's health and resultant circumstances and to her lifelong attitude to her mother, her husband had become for her both a father and mother symbol, upon whom she was emotionally dependent. It appeared that she resented this dependence and felt insecure in consequence, precisely as her husband felt.

Later observation led to the, to her, astounding observation that her migraine headaches occurred always when some word, deed, or omission by her husband led to increase in this underlying substratum of resentment. In short, the mechanism which in the husband's case had led to anxiety, in the wife's case led to headache. In the case of the wife, the chain could be expressed: abnormal dependence, insecurity, resentment, further insecurity, headache. The abnormal dependence in the wife's case was not readily discovered as she had the typical migraine personality, in which dependency is not obvious as a trait. When it was belatedly discovered and accepted, it began to appear that her resentment was partly against herself for being unable to express resentment against the love object depended upon. Thereafter, on appearance of the eye signs preceding headache, she looked for any recent or immediate causes for resenting her husband's attitude or behaviour. She has thus been able to abort every threatened migraine headache for the past six years.

DISCUSSION

Several additional features of the dependence-resentment mechanism need stressing. The patient was capable of expressing resentment and did so against persons upon whom she was not abnormally emotionally dependent. Even against her husband, she could on occasion express resentment but only if she felt sure that his mood was such that the incident would be passed off lightly. On all other occasions, resentment of her husband was repressed and the resentment against the self for being unable to express resentment openly was also hidden from self-knowledge. Again, it was not the insight into resentment which produced cure but into the abnormal emotional dependence which lay behind it. It seems that the ambitious, perfectionistic, rigid migraine sufferer fears and resents emotional dependence particularly. The resentment in such cases is therefore three-pronged; against the hidden feeling of emotional dependence, against the immediate actions or attitude of the person depended upon and against the self for not being able to admit or express resentment against the person depended upon, for fear of loss of affection and support.

The idea of resentment being a psychogenic factor in migraine is not new, but the exact mechanism by which it operates to produce headache has never previously, so far as can be determined, been demonstrated. As a corollary, it follows that cures achieved by insight into the mechanism have never before been reported. The genuineness of the cure is attested by continued observation of the case which has been studied over the years. Until an objective method is devised for determining presence or absence of hemicranial headache, there can be no better criterion for cure in such a case.

Physical causes of migraine and cases of migraine due only to physical causes of course exist, notably those due to food allergy. In this case the entire disappearance of prodromal eye signs in pregnancy and their reappearance afterwards, add weight to other testimony that physical and psychical factors of migraine often are interdependent.

For a time after treatment was completed the prodromal eye signs continued to appear but were regularly aborted in the manner described. They became less and less frequent and finally entirely disappeared.

SUMMARY

1. A case is presented in which threatened migraine could be aborted by exercise of a slowly acquired emotional insight.

2. The method by which this insight was attained is described.

3. In brief, it consisted of the acceptance by the patient of her abnormal emotional dependence which led to insecurity, resentment and headache.

4. The resentment was threefold: against the dependence, against the actions or attitude of the person depended upon and against the self for failing to admit the resentment.

5. By recognizing the repressed reasons for resentment and analyzing the causal chain back to immature emotional dependency, the patient has been free of migraine headache for the past six years.

6. During pregnancy, the exercise of insight was unnecessary as no prodromes appeared. This would indicate the intrusion of physical causes into the complex.

7. Prodromal signs became less and less frequent and finally disappeared.

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A STUDY OF THE COMPLICATIONS RESULTING FROM TREATMENT OF CANCER OF THE CERVIX*

NORMAN A. McCORMICK, F.A.C.R., F.R.C.S.(Edin.), *Windsor, Ont.*

ONE FREQUENTLY HEARS reference to late and serious sequelæ resulting from use of radium and x-ray in the treatment of cancer of the cervix. Opinions are expressed that the treatment of this disease is fraught with hazardous and unpleasant complications. These views differ so widely from impressions gathered by the author that it was decided to analyze the histories of all patients treated for cancer of the cervix on the Neoplastic Service of the Metropolitan General Hospital in Windsor and make a study of the complications following upon their radiotherapy.

Our patients receive 200 r, as measured in air, of heavily filtered 200 kv roentgen therapy, administered in order to obtain maximum depth penetration at 80 cm. skin target distance, on two areas daily for a total of 2,000 r to each of six external pelvic portals; intrauterine and vaginal applications of radium follow immediately.[1] Four 25 mgm. capsules of radium filtered by 1 mm. of platinum, placed in tandem formation in an ametal rubber applicator are inserted into the uterine cavity in the operating room under pentothal anæsthesia and are left in place for 30 hours to deliver a dose of 3,000 mgm.-hours. Three days later, under similar circumstances, five 10 mgm. needles uniformly spaced 1 cm. from the surface of a sponge rubber applicator are placed in the vault of the vagina for 2,500 mgm.-hours. Any uterine bleeding present ordinarily ceases within a few days of the onset of x-ray treatment and rarely is it necessary for a patient to be admitted to hospital until ready for her radium. She leaves the hospital on the fifth or sixth day. The entire x-ray and radium treatment is under the direct supervision of a single individual and may be modified slightly from time to time to meet the particular needs of the patient. Supportive therapy for anæmia and other conditions is given as indicated. The plan of treatment was adopted in June of 1939; patients treated prior to that date were given an additional 500 mgm.-hours intravaginally. The results in terms of five-year survivals are shown in Table I.

Toward termination of the x-ray therapy and for a short interval thereafter many patients experience a reddening of the skin in the areas treated; desquamation follows in a few instances. There is often at this time a temporary minor degree of rectal and bladder irritation; nausea, encountered on rare occasions, responds to proper care. These transient symptoms are the accompaniments rather than complications of treatment, and are not under present consideration. Similarly, distinction must be made between the difficulties of patients dying from uncontrollable cancer and the injuries resulting from irradiation. Fistulæ may occur from direct extension of growth to the bladder or rectum; actively

*An excerpt from a presentation delivered at the Round Table Conference on "Radiation in the Treatment of Carcinoma of the Cervix" held in the Section of Radiology of the Canadian Medical Association, Halifax, June 21, 1950, revised and presented for publication in February, 1952.

growing cancer may lead to intestinal obstruction, ureteral blockage, pelvic peritonitis, and abscess formation. These unfortunate circumstances result from failure to cure the disease and are in no way related to the treatment method.

Radiotherapy as outlined has been used for treatment of primary or recurrent cancer of the cervix in 369 women: 19 patients subsequently developed symptoms of proctitis, 17 complained of late urinary difficulties, 3 suffered both: no other symptoms or difficulties referable to treatment occurred. We, therefore, find that complications the direct result of treatment have developed in 33 of our patients. Others may become manifest at a later date, so it is probably more informative to record that there were 31 women with radiologic complications in our series of 288 patients treated for cancer of the cervix prior to December 31, 1948.

The complications were not invariably serious. Thirteen of the 19 patients with proctitis experienced only transitory reddening of a small area of rectal mucous membrane accompanied for a short time by slight symptomless bleeding and have had no further difficulty. One has periodic diarrhœa. Mucosal ulcers appeared in the rectal wall adjacent to the cervix in five patients. The ulcers healed spontaneously in two women in five and eight months respectively, and both have remained well: they suffered very little discomfort. Three patients were more unfortunate. One had a colostomy performed elsewhere one year after treatment and within three weeks of the date on which she developed a rectal ulcer. The operation provided no relief from pain and she died of uncontrollable cancer 15 months later. Recurrent cancer was found in the cervical canal five months after the second patient's treatment and radium was re-applied. The rectal ulcer appeared one month after this third radium insertion; she subsequently developed an intestinal obstruction, had a colostomy performed and died seven months later from extensive cancer. It is our opinion that healing of the ulcers would have taken place in both instances, without the necessity of colostomy, had the patients not died of uncured cancer.

The remaining patient in the group suffering injuries to the rectum was retreated with radium

TABLE I.

RESULTS FROM TREATMENT OF PRIMARY CARCINOMA OF THE CERVIX

Year	*Patients admitted for treatment**	*Untraced*	*Alive 5 years*	*Absolute survival*
1935	7	0	1	14%
1936	15	0	6	40%
1937	12	0	4	33%
1938	18	0	6	33%
1939	16	0	6	37%
1940	17	0	5	29%
1941	14	0	6	43%
1942	19	0	7	37%
1943	24	0	10	42%
1944	29	0	16	55%
1945	23	0	12	52%
1946	25	0	18	72%
1947	27	0	17†	63%†
1948	24	0	13†	54%†

*The full course of treatment is not invariably given. Some patients were dying upon admission, other very advanced cases are not considered suitable for radium therapy.

†Four and three year survivals. Estimated five year survivals 59% and 50% respectively.

TABLE II.

COMPLICATIONS ARISING FROM THE RADIOTHERAPY OF 288 PATIENTS TREATED FOR CANCER OF THE CERVIX BETWEEN DECEMBER 5, 1935 AND DECEMBER 31, 1948.

Complications	*Total*	*Minimal temporary*	*More prolonged*	*Severe*	*Healed spontaneously*	*Fistula*	*Colostomy*	*Ureterostomy*	*Died of cancer*	*Died of Complic.*
Injuries to rectum	19									
Minimal temporary proctitis		13							3	
Occasional diarrhœa		1								
Ulcerative proctitis			4		2		2		2	
Recto-vaginal fistula				1		1				
Temporary colostomy							1			
Injuries to urinary system	15									
Minimal temporary frequency		7								
Mild bladder fibrosis			5						1	
Severe bladder damage				3						
Death from pyelonephritis without cancer 13 years later										1
Vesico-vaginal fistula						2				
Died from pyelonephritis without cancer after 5½ years										1
Alive with ureterostomy								1		
Total complications	34	21	9	4	2	3	3	1	6	2
Number of patients	31	19	9	3	2	2	3*	1	6	2
Incidence of complications	10.7%	6.6%	3.1%	1.0%		0.7%				0.7%

*No permanent colostomies in this series.

one year later for residual disease in the vaginal walls. Six months after this third radium application she developed a vesicovaginal fistula followed in eight months by another into the rectum. A temporary colostomy was performed, but her reduced bladder capacity made two attempts to close the bladder opening futile. A bilateral loin ureterostomy performed two years

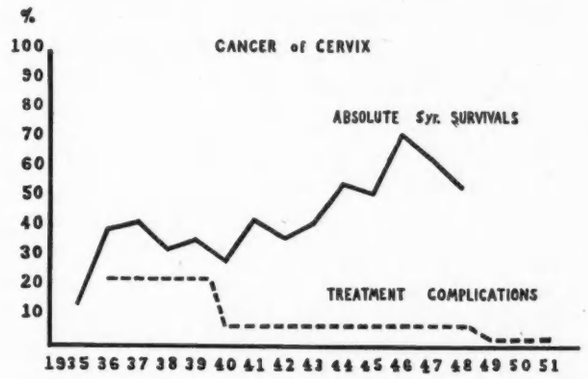

Fig. 1.—1947 and 1948 are ' and 3 year survivals respectively.

ago was followed by repair of the rectovaginal fistula and subsequent closure of the colostomy. She has remained comfortable and most appreciative. The unfortunate damage suffered by this patient did not result from the routine treatment for cancer of the cervix, but was brought about during the retreatment required for obliteration of a recurrence in her bladder and rectal walls. It is difficult to see how this cancer could have been cured without the sacrifice of a portion of these structures and she is indeed fortunate and happy to be alive.

Seven women experienced a minimal temporary bladder irritation for a somewhat longer interval than usual. Five had a mild but permanent bladder fibrosis; one died of cancer, the others have occasional frequency. Three patients suffered severe bladder damage: one died 13 years later of pyelonephritis, the result of her treatment, without recurrence of the cancer: vesico-vaginal fistulæ appeared in two patients, one is described above; the second bladder fistula occurred two years after treatment of a stage 3 cancer which involved the floor of the bladder. This patient died in the sixth year of pyelonephritis. No residual cancer was found at the autopsy.

As has been described, the routine radium dosage was reduced in June of 1939 in an endeavour to lessen the incidence of what we felt were unnecessarily frequent treatment complications. The result was unexpectedly gratifying. Not only has there been a very significant decrease in the number of complications, but this has been accompanied by an increase in the absolute survival rate (Fig. 1).

Twelve of the 19 patients who developed proctitis received a minimum of 6,000 mgm.-hours of radium: the five with ulcerative proctitis all had doses of this magnitude or greater, and two of these had been retreated for residual cancer. Six of the 15 patients with urinary complications received 6,000 mgm.-hours or more of radium and two of these were retreated for persisting cancer. The incidence of complications among patients receiving doses of 6,000 mgm.-hours or more of radium was 23.6%. Patients treated between June 1939 and December 31, 1948 with a routine radium dose of 5,500 mgm.-hours suffered complications in 6.5%. The absolute five-year survivals in the two periods were 33 and 49%, respectively. Since 1943 the five-year survivals have exceeded 50%. The

TABLE III.

INFLUENCE OF RADIUM DOSAGE ON INCIDENCE OF COMPLICATIONS

	Number of patients	*Routine radium dosage*	*Five year survivals of primary cancer (absolute)*	*Number of patients with proctitis*	%	*Number of patients with cystitis*	%	*Numbers of patients with one or both complications*	%
Patients treated prior to June, 1939.....	72	6,000 mghrs. or† +	33%	12	16.6	5	7.0	17	23.6
Patients treated between June, 1939 and Dec. 31, 1948.....	216	5,500 mghrs.	49%†	7	3.2	10	4.6	14*	6.5
Patients treated since January 1, 1949.....	81	5,500 mghrs.		0	0	2	2.5	2	2.5

†158 patients treated June, 1939 to Dec. 31, 1946.
*The routine radium dosage was exceeded in 2 of these patients.

incidence of complications among patients treated within the past three years is 2.5%.

Only one patient suffered severe damage from her initial treatment. She was given 12,600 r by roentgen therapy and 6,000 mgm.-hours of radium; both doses were somewhat larger than are presently recommended.

Management of the patient whose cancer was not cured on the first attempt is particularly difficult. Fifteen per cent of those requiring retreatment suffered complications. Two of the three patients with severe treatment complications were in this retreated group. Nevertheless, retreatment in the presence of residual cancer may be worth while because we have obtained 10% five-year salvages thereby.

One hundred patients treated for cancer of the cervix have remained free from growth for more than five years. The damage these women sustained by curative radiotherapy is shown in Table IV. Radiologic treatment caused the later death of 2% of those cured of cancer. Inasmuch as these unfortunate women were known to have serious damage within three and a half years of treatment, it is unlikely that there will be further deaths from injury in the five-year survivors (Fig. 2).

TABLE IV.

INCIDENCE OF PERMANENT COMPLICATIONS AS THE RESULTS OF RADIOTHERAPY IN 100 WOMEN CURED OF CANCER OF THE CERVIX (5 YEAR SURVIVAL)

	Patients	*Per cent*
Injury to the rectum	1	
Injury to the urinary tract	6	
	6	6
Of mild degree	3	3
Of severe degree	3*	3
Late mortality	2	2

*The original attempt to cure the cancer was unsuccessful in 2 of these 3 patients. They were retreated. One is alive without cancer after 6 years. Two died of pyelonephritis from an ascending infection, the result of bladder damage, without cancer at 5½ and 13 years respectively.

There have been no injuries to the small bowel. This complication as reported in the literature, seemingly most often results from unnecessarily rigorous treatment or the use of intravaginal x-ray therapy, for which we see no necessity. Despite use of lateral portals, no spontaneous fractures of the femoral neck have occurred. Neither have we had any experience with these mishaps during the treatment by irradiation of a not inconsiderable number of additional patients for other forms of cancer. Provided one is not called upon to retreat a patient for residual disease following previous radiotherapy, for many years the treatment complications have been practically non-existent.

SUMMARY

1. Complications resulting from treatment of cancer of the cervix by x-ray and radium are not necessarily as frequent as is commonly supposed.

2. Eleven per cent of patients treated prior to 1949 suffered injury to the bladder or rectum.

3. In most instances the damage was of a temporary nature.

4. Two per cent have a slight permanent bladder fibrosis.

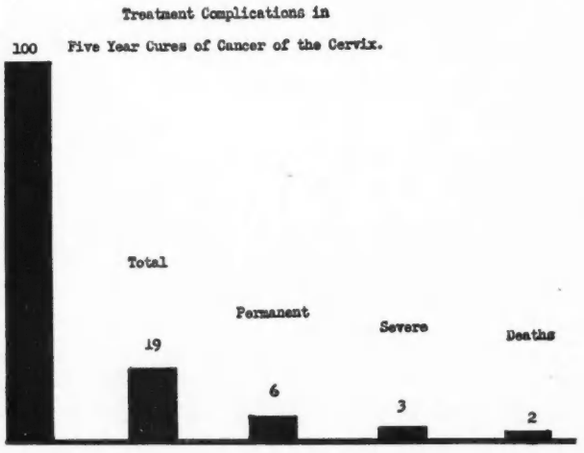

Fig. 2.—The readings for 1936, 1937 and 1943 should be 40, 33 and 42%.

5. In 1% the injury was severe, it caused the death of two patients: the treatment mortality was three-quarters of 1%.

6. No other injuries have taken place.

7. The complications have decreased and no permanent injury has resulted to any patient treated according to the plan adopted in June 1939.

8. Injury may take place when one is called upon to retreat a patient with residual cancer.

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A SURVEY OF METHODS USED TO REVEAL EYE DEFECTS IN SCHOOL CHILDREN*

A. LLOYD MORGAN, M.D.,
JOHN S. CRAWFORD, M.D.,
THOMAS J. PASHBY, M.D. and
JOHN R. GABY, M.D., *Toronto*

THIS STUDY WAS UNDERTAKEN as the result of many enquiries received from various Departments of Education and School Boards for advice as to the best methods of testing vision in school children. The need for a simple, efficient, inexpensive routine for testing the eyes of school children is recognized. This routine should produce a standard for referral for eye consultation. As a rule, children do not complain of their ocular defects, hence the observations of their parents, teachers and doctors, or some screening method done in their school must be relied upon. In surveying the literature, it will be noted that very few studies on children have been done, and of these the results frequently fail to agree.

Sloane[1] in 1940, developed the Massachusetts Vision test for school children, comprising the Snellen letter, a Maddox Rod reading for near and far, and a test for manifest hypermetropia using +1.50 spheres. He suggested referring for consultation those children having 20/25 vision in each eye or 20/30 or worse in either eye; having an esophoria greater than 6 or an exophoria greater than 8 prism dioptres at 20 feet; or having a manifest hypermetropia giving them 20/20 vision in one eye or 20/30 in each eye separately, with a +1.50 sphere.

Sulzman, Cook and Bartlett[2] in 1948, reported results of visual acuity measurements with the Orthorator, Sight-Screener, Telebinocular and the Snellen Letter charts. In order to compare the instruments with a reasonable standard, they developed the New London Charts, which are modified Snellen Charts. They found the Keystone Telebinocular, then available, inferior in validity and reliability to the Orthorator and the Sight-Screener. In their opinion, no choice between the other two instruments could be made. In every instance, the reliability of measure of acuity for distance was found to be greater than the reliability of measures for near. The reliability of measures with screening instruments was found to be slightly inferior to that of the New London Chart. The screening devices were as reliable as the Snellen charts.

Shaffer[3] in 1948, made a study of vision testing procedures using the Snellen "E" chart, the Massachusetts Vision Test, and the Keystone Telebinocular. He found the Snellen chart at 20 feet the most reliable single test, when carried out successfully with proper illumination. The Telebinocular was satisfactory, but picked out too many unnecessary referrals, while the Massachusetts Vision Test was not selective enough in picking out referrals. As a basis for consultation he suggested a visual acuity of 20/40 or worse in either eye for ages seven or less, and 20/30 or worse for children over seven years.

Imus[4] in 1949, made a survey of visual testing reliability of the commercial machines and found the machine tests could be used to predict clinical factors with a fair degree of accuracy and consistency. He found the Orthorator slightly more reliable and valid than the other devices. For vertical and lateral phorias he found the Orthorator slightly more consistent but the correlation coefficient was relatively low for all instruments.

PROCEDURE USED IN PRESENT SURVEY

The common eye tests used in the Toronto area were studied. Twelve hundred children in two of Toronto's public schools were tested. These were divided into three groups, Kindergarten, Grades I and II, and Grades III to VIII inclusive, using the tests applicable to each age group. The sequence of testing was varied and only a few tests were done at any one time to eliminate fatigue. In an initial group of four hundred children the tests used included the Snellen Animal, illiterate "E", number and letter charts, the project-o-chart number, letter and illiterate "E" slides, the Bausch and Lomb Orthorator, the American Optical Sight-Screener and the Keystone Telebinocular, the Maddox Rod for distance and near, cover test at 15 inches, near point of convergence, synoptophore, Holmgren wools and American Optical Pseudo-isochromatic plates. External examination, cycloplegic refraction and fundus examination were made. A retest reliability for Snellen charts was determined by testing the same child on the same chart on different days.

In an additional group of 800 children the tests used included the Snellen animal and letter charts, project-o-chart illiterate "E" and letter

*Department of Ophthalmology, Hospital for Sick Children, Toronto.

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slides, Maddox Rod for distance and near, cover test at 15 inches, near point of convergence and Pseudo-isochromatic plates. A cycloplegic refraction was done on all Kindergarten children, and in the other grades, every child with worse than 20/20 vision in either eye. The effect on visual acuity of varying the illumination of a Snellen Letter chart from 5-10-15 foot candles was recorded.

TABLE I.

DISTRIBUTIONS OF VISUAL ACUITY: KINDERGARTEN
(% eyes with various visual acuities)

Visual acuity	*Snellen animal*	*Snellen "E"*	*Project-O-chart "E"*	*Telebinocular (far)*
20/15				
20/20	2.6	18.6	35.2	11.4
20/25		16.5	2.6	8.4
20/30	26.1	32.0	54.4	19.2
20/40	26.5	20.6	5.7	21.0
20/50	25.7	9.3	0.4	
20/60		1.0	0.9	20.4
20/70			0.4	
20/80	12.2		0.4	
20/100 or worse	7.0	2.1		19.8
Number of eyes	230	97	230	167

TABLE II.

DISTRIBUTIONS OF VISUAL ACUITY: GRADE I
(% eyes with various visual acuities)

Visual acuity	*Snellen numbers*	*Project-O-chart numbers*	*Project-O-chart "E"*	*Telebinocular (far)*
20/15	1.0	1.1	1.0	18.6
20/20	37.6	35.2	55.9	50.9
20/25		38.6	8.8	9.8
20/30	42.6	29.7	23.5	5.9
20/40	7.9	1.1	2.9	3.9
20/50	3.0	3.3	2.9	
20/60				7.8
20/70	2.0	1.1	2.9	
20/80				
20/100 or worse	5.9		2.0	2.9
Number of eyes	101	91	102	102

VISUAL ACUITY

The distribution of results for the various methods used in assessing visual acuity from Kindergarten to Grade VIII is given in Tables I to IV. A high percentage of children of Kindergarten age have visions of 20/30 or worse, while in the older grades, especially from Grade III to VIII, the majority of children have visions equal to 20/20 or better.

In order to assess the extent to which the results of the various tests agreed, correlation coefficients were calculated comparing the various tests with the Snellen chart. The correlation coefficients are given in the first half of Table V. These indices may vary from 0 to 1, a coefficient of zero implying no relation while a coefficient of 1 implies a perfect relation. Tests of visual acuity at Kindergarten age are poorly correlated, whereas in Grade III to VIII the correlations of Snellen Letter and Number, project-o-chart letter and number are high. The

TABLE III.

DISTRIBUTIONS OF VISUAL ACUITY: GRADE 2.
(% eyes with various visual acuities)

Visual acuity	*Snellen letter*	*Snellen number*	*Project-O-chart letter*	*Project-O-chart number*	*Telebinocular (far)*
20/15	6.5	3.0		3.0	38.7
20/20	22.6	19.4	77.4	6.0	35.7
20/25			10.7	28.4	4.8
20/30	33.9	44.8	3.0	25.4	6.0
20/40	17.7	13.4	1.2	17.9	3.6
20/50	3.2	7.5	1.8	4.5	
20/60	3.2		3.0		5.4
20/70		4.5	1.8	4.5	
20/80	8.1			1.5	
20/100 or worse	4.8	7.5	1.2	9.0	6.0
Number of eyes	62	67	168	67	168

TABLE IV.

DISTRIBUTIONS OF VISUAL ACUITY: GRADES 3 to 8
(% eyes with various visual acuities)

Visual acuity	*Snellen letter*	*Snellen number*	*Project-O-chart letter*	*Project-O chart number*	*Telebinocular (far)*	*Sight-Screener*	*Orthorator*
20/15	27.1	14.9	49.9	22.6	55.5	19.6	21.3
20/20	35.7	43.1	26.0	41.2	30.3	43.7	53.9
20/25			4.2	13.0	2.4		10.9
20/30	22.1	25.1	10.1	11.7	2.2	29.3	10.3
20/40	6.5	8.1	2.0	4.0	4.6	2.7	1.4
20/50		0.9	0.3	0.8		1.4	1.4
20/60	1.8		1.1		1.9		
20/70		3.8	1.3	2.1		1.6	0.8
20/80	3.6		1.9	1.1		0.3	
20/100 or worse	3.2	4.1	2.3	3.5	3.2	1.4	
Number of eyes	443	443	377	376	370	368	358

Orthorator, Telebinocular and Sight-Screener do not correlate as well, either with the Snellen letter chart or among themselves.

It was thought that these coefficients gave undue weight to discrepancies between the tests in the region of poor visual acuity. For this reason a further measure of the lack of agreement was devised by calculating the percentage of eyes having a visual acuity of 20/20 or better by one test and less than 20/20 by the other. The percentage "misclassified" are given in the second half of Table V. It will be noted that these various values place the tests in the same general order as the correlation coefficients.

The test-retest correlations and percentages

TABLE V.

TEST INTERCORRELATIONS
VISUAL ACUITY

Test	*Grade*	*SE*	*PE*	*SN*	*PN*	*PL*	*Telebinocular*	*Sight-screener*	*Orthorator*
Snellen animal	Kindergarten	0.48	0.56				0.66		
Snellen number....	Grade 1		0.83		0.90		0.20		
Snellen letter.....	Grade 2			0.84	0.96	0.90	0.58		
Snellen letter..	Grade 3 to 8			0.94	0.94	0.96	0.75	0.83	0.67
Telebinocular.	Grade 3 to 8							0.77	0.68
Sight-screener.	Grade 3 to 8								0.60

TEST MISCLASSIFICATION

% "misclassified"									
Snellen animal	Kindergarten	23	33				7		
Snellen number....	Grade 1		25		6		27		
Snellen letter..	Grade 2			11	22	18	23		
Snellen letter..	Grade 3 to 8			15	18	14	17	23	22
Telebinocular.	Grade 3 to 8							25	22
Sight-screener.	Grade 3 to 8								25

TABLE VI.

RETEST CORRELATIONS
VISUAL ACUITY

Test	*Grade*	*r*	*% "misclassified*
Snellen animal..	Kindergarten	0.87	—
Snellen number.	Grade 1	0.90	11
Snellen letter...	Grade 2	0.91	15
Snellen letter...	Grades 3 to 8	0.92	12

TABLE VII.

DISTRIBUTION OF REFRACTIVE ERRORS: KINDERGARTEN CYLINDERS

Spheres	*-2.0 to -0.25*	*0*	*+0.25 to +2.0*	*+2.0 to +4.0*	*Total*
-2.0 to -0.25	1.0	3.0	2.0	—	6.0
0.....	—	5.0	5.0	—	10.0
+0.25 to +2.0....	—	40.0	28.0	—	68.0
+2.0 to +4.0....	—	5.0	11.0	—	16.0
Total.....	1.0	53.0	46.0		100.0%
Number of pupils	102				

TABLE VIII.

DISTRIBUTION OF REFRACTIVE ERRORS: GRADES 1 AND 2 CYLINDERS

	-2.0	*-2.0 to -0.25*	*0*	*+0.25 to +2.0*	*+2.0 to +4.0*	*+4.0*	*Total*
Spheres							
-2.0.....						1.0	1.0
-2.0 to -0.25.....		3.0	2.0	3.0	2.0	1.0	11.0
0.....			4.0	3.0	1.0		8.0
+0.25 to +2.0.....			47.0	25.0			72.0
+2.0 to +4.0.....			2.0	5.0			7.0
+4.0.....					1.0		1.0
Total.....		3.0	55.0	36.0	4.0	2.0	100.0%
Number of pupils.....		160					

"misclassified" in the various grades with the appropriate Snellen charts are found in Table VI. The correlation coefficient is sufficiently high to make retesting unnecessary.

The distribution of refractive errors in Kindergarten, Grades I and II, and Grades III to VIII is given in Tables VII to IX. In Table X is given the distribution of refractive errors by ages. It is evident that the great majority of children are hypermetropic. From ages 5 to 14 the incidence of hypermetropia decreases, that of emmetropia and myopia increases, while mixed astigmatism remains relatively unchanged. The correlation of cycloplegic refractive errors with visual acuity is uniformly poor.

MUSCLE BALANCE

The distribution of results for horizontal phorias at 15 inches and 20 feet is given in Table XI. The majority of children have no significant imbalance. It will be noted that over twice the number of children have esophorias ranging from 5 to 12 prism dioptres at 15 inches as compared with 20 feet. 1% of the children surveyed had hyperphorias ranging from 0 to 1 prism

TABLE IX.

DISTRIBUTION OF REFRACTIVE ERRORS: GRADES 3 TO 8
CYLINDERS

	-2.0	*-2.0 to -0.25*	*0*	*+0.25 to +2.0*	*+2.0 to +4.0*	*+4.0*	*Total*
Spheres							
-2.0	0.5	0.2	0.2	0.5			1.0
-2.0 to -0.25	0.2	2.0	6.0	0.7	0.7	0.5	10.0
0		0.5	10.0	4.0	0.5		15.0
+0.25 to +2.0		0.2	47.0	21.0	0.5		69.0
+2.0 to +4.0			3.0	1.0	0.2		4.0
Total	1.0	3.0	66.0	27.0	3.0		100.0%
Number of pupils	420						

TABLE X.

DISTRIBUTION OF REFRACTIVE ERRORS BY AGES
(% eyes with various refractive errors)

Age	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*
Emmetropia	2%	5%	8%	5%	3%	7%	7%	9%	10%	9%
Hypermetropia—Simple	48%	61%	42%	36%	47%	49%	34%	36%	26%	33%
S. Astig.	5%	6%	—%	4.5%	4%	4%	3%	1%	3%	2%
Comp. Astig	38%	21%	39%	40%	21%	29%	19%	37%	45%	33%
Myopia—Simple	1.4%	—	4%	3.5%	5%	3%	8%	5%	10%	4%
S. Astig.	0.3%	1%	—	1%	—	—	19%	1%	—	5%
Comp. Astig	0.3%	—	1%	5.5%	5%	3%	5%	7%	6%	7%
Mixed astigmatism	5%	6%	6%	4.5%	15%	5%	5%	4%	—	7%
Number of eyes	231	97	84	111	80	94	113	98	38	60

TABLE XI.

DISTRIBUTION OF MUSCLE BALANCE: KINDERGARTEN—GRADE 8
(% of children with various amounts of horizontal phorias)

Prism dioptres	*Maddox rod (far)*	*Telebinocular (far)*	*Sightscreener (far)*	*Orthorator (far)*	*Maddox rod (near)*	*Telebinocular (near)*	*Sightscreener (near)*	*Orthorator*	*Synoptophore*
-13 to -20		1.1							3.3
-5 to -12	8.0	7.6	4.5	3.4	5.5	7.2	4.2	4.4	19.5
-4 to +4	86.0	83.2	87.4	94.5	71.4	79.8	77.1	76.6	50.2
+5 to +12	6.0	8.1	7.6	2.1	23.1	11.8	17.1	19.9	22.6
+13 to +20			0.5			1.2	1.6	1.1	4.4
Number of children	286	290	197	180	290	320	192	181	319

dioptres, 2.3% from 1 or 2 prism dioptres, and 0.5% over 2 prism dioptres. 2.1% of the total number of children had heterotropias of varying degree and of these 0.5% were amblyopic in one eye.

The correlations between the Maddox Rod and the other tests for measuring muscle balance are given in Table XII. These correlations are all poor.

COLOUR VISION

9.6% of the children failed the Orthorator colour vision test, 8.9% failed the Pseudo-isochromatic plates and 1.7% the Telebinocular colour vision chart. It is of interest that only one child failed all three tests.

TABLE XII.

TEST INTERCORRELATIONS: GRADE 3 TO 8
MUSCLE BALANCE
NEAR TESTS

	Telebinocular	*Orthorator*	*Sight-screener*	*Synoptophore*
Maddox rod	.39	.53	.52	.60
Telebinocular		.46	.56	.53
Orthorator			.57	.41
Sight-screener				.62
		Far tests		
Maddox rod	.25	.20	.27	
Telebinocular		.36	.57	
Orthorator			.47	
Synoptophore				

ADDITIONAL RESULTS

The distribution of visual acuity by ages is given in Table XIII using the project-o-chart letters. A change in visual acuity is noted around nine years of age, when the majority of children with "normal" vision show an improvement in visual acuity from 20/20 to 20/15.

No significant change in visual acuity is found by varying the illumination of the Snellen chart from 5-10-15 foot candles.

Out of the total number of children examined 10.4% required a correction for the existing refractive error and of these 3.4% were already wearing an adequate correction, while 7% were uncorrected.

Fundus anomalies were found in 3% of the children refracted. These anomalies included changes in myopia, deep physiological cupping of the discs, and medullated nerve fibres. No significant pathological change was found on external or fundus examination during this survey.

CONCLUSIONS AND RECOMMENDATIONS

1. The Snellen illiterate "E" chart is an adequate test for visual acuity in the Kindergarten age group. A visual acuity of 20/30 in each eye can be regarded as normal. Children with visual acuity poorer than 20/30 in either eye should be referred for eye consultation.

2. In grades one to eight a visual acuity of 20/20 in each eye can be regarded as normal. The Snellen Number Chart is an adequate test of visual acuity for children in Grade I, and the Snellen Letter Chart is adequate for children in Grades II to VIII. A child with vision poorer than 20/20-3 in either eye should be referred for eye consultation.

3. Adequate illumination of the Snellen chart is necessary. This should be about 10 foot candles and may be obtained by placing a goose-necked lamp with reflector on each side of the chart and about three feet from it. Each lamp should contain a 100 watt daylight bulb.

TABLE XIII.

DISTRIBUTION OF VISUAL ACUITY BY AGES
(% eyes with various visual acuities)

	7	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*Total*
20/15	3.6	32.8	49.5	51.3	54.9	55.5	60.8	52.7	46.6
20/20	68.6	51.6	33.1	28.4	22.6	24.7	23.0	21.8	33.3
20/25	9.8	6.3	2.8	7.1	8.0	7.5	1.3	5.5	6.1
20/30	4.5	2.1	5.2	4.7	4.5	3.2	2.7	6.4	4.0
20/40	1.8	0.5	1.7	1.4	2.5	1.6	3.4	3.6	1.9
20/50	4.5	1.6	2.9	3.8	2.0	1.1	2.0	0.9	1.5
20/60	2.7	1.0	1.2	0.5	1.0	3.2	2.0	0.9	1.5
20/70	3.6	1.0	1.2	1.4	1.0		0.7	1.8	1.3
20/80		0.5	0.6		0.5	0.5	0.7	0.9	0.4
20/100 or worse	0.9	2.6	1.7	1.4	3.0	2.7	3.4	5.5	2.6
Number of eyes	112	192	172	211	199	186	148	110	1338

4. Snellen charts should be placed a distance of 20 feet from the subject. It is preferable to test each child alone without the distraction of other children.

5. Colour vision can be adequately tested by Holmgren wools in the Kindergarten age group, and by Pseudo-isochromatic or Ishihara plates in the older age groups.

6. No one test for the measurement of vertical and lateral phorias is better than any other, as all the tests correlated poorly. The amount of emphasis that should be placed on phorias in this age group is problematical. Any tropia should, of course, be referred for an ophthalmologist's opinion.

7. It would be advisable for persons doing eye testing in schools to have had some instruction either by lecture or by pamphlet in visual testing, types of refractive errors, strabismus, and signs and symptoms suggesting ocular difficulties.

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THE DIABETIC IN INDUSTRY*

I. M. RABINOWITCH, M.D., *Montreal*

THE PROBLEMS of the diabetic are many. One is that we do not know what causes diabetes. This is a problem for the physiologist. Another is how to make the best use of that which is known. This concerns the practising physician, —and one of his problems is education of the patient. But no less essential to the health and welfare of the diabetic is employment, and here, as will be seen, the solution is largely in education of the public.

The extent to which there is need of educating the public is seen in the many organizations which do not employ diabetics. A large life assurance company—The Metropolitan Life Insurance Company—does not employ them. A large industrial organization—The Edison Company of New York—does not employ them.[1] A Committee of the Association of American Railroads has expressed the belief that "no known diabetic should be hired".[2] These three examples could be multiplied many times.

The extent to which such practice and belief are capable of doing harm in Canada alone is seen in the number of diabetics in Canada, their ages, the rate at which the diabetic population has increased in the last thirty years, and the rate at which it may be expected to increase.

The Dominion Bureau of Statistics, Department of Trade and Commerce, in estimating The Labour Force of Canada, includes all individuals of age 14 and over. If we include these ages of diabetics, we include about 90% of all diabetics. Assuming therefore, that the same percentage distribution of those with jobs and those without jobs[3] applies to diabetics as to the general population of non-diabetics, there are in the labour force of Canada approximately 40,000 male diabetics and 11,000 female diabetics with jobs.

Though diabetes occurs at all ages—from the breast-fed infant to the nonagenarian—it is essentially a condition of people approaching and past middle life. Also, in most instances, diabetes is inherited. Therefore, as the average duration of life increases it may be expected that the diabetic population will increase, and thus the number of employable diabetics will increase. Since 1920, the diabetic population of Canada has about doubled, and here are the probabilities of the future: at all ages, from birth to age 45 years, the chances are that two of every one hundred males now alive will eventually become diabetics. In the female population, the probabilities at all ages, from birth to age 45 years, are that four of every one hundred now alive will eventually become diabetics. Of the popu-

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lation as a whole, therefore, the probabilities are that about 400,000 of those alive today will eventually become diabetics. This is not a rough guess but based upon standard actuarial technique.

Though the fundamental cause of diabetes is not known, much is known of the conditions which tend to precipitate it in persons who have inherited a tendency towards it, and one of these is *obesity*, which, to an appreciable extent, explains the fact that the highest incidences of diabetes are amongst merchants and storekeepers; saloon keepers and bartenders; railway engine men and clerks, and that the lowest incidence is amongst teamsters, farmers, carpenters and coal-miners. In between are such occupations as machinists, railway track and yard workers, plumbers, gas-fitters and steam-fitters. A further increase in diabetes may therefore be expected, as more and more use of power offsets the need of human labour, and as more and more time becomes available for leisure.

Diabetes can be very disabling. Slow healing of wounds is an example. Amputation of a lower extremity because of gangrene is another. The susceptibility to coronary artery disease is another. All of these conditions have been repeatedly stressed by the Association of American Railroads.[4] It is essential however that these disabling conditions be seen in their proper perspective. Girls do not hesitate to marry because of the tragic deaths in child-birth. They know that these deaths are the exceptions to the rule. One does not hesitate to travel by train because of the many deaths from train collisions, even though they have been the result of gross negligence. Travel by air is not discouraged because of the many deaths from aeroplane accidents. These deaths are seen in terms of the total number of people who travel by train and by air and the total number of miles so travelled. Similarly common sense and justice to diabetics demand that industries properly evaluate the risk of their employment.

Minor injuries.—Minor injuries such as cuts and bruises, that is, injuries which ordinarily permit the employee to return to his work immediately after a simple dressing, and which ordinarily heal completely within a few days, are very common in industry. Diabetes is capable of prolonging the healing of such wounds, and the more delayed the healing the greater is the risk of infection, which may still further interfere with healing. But to what extent does the absenteeism rate, because of such injuries amongst diabetics in industry, differ from the absenteeism rate because of such injuries amongst the general population of non-diabetics?

Serious injuries.—A fact to consider is that an appreciable percentage of diabetics require insulin, and the slightest excess of insulin is capable of causing mental confusion. It is thus capable of causing very serious injury particularly in occupations which are ordinarily hazardous. Operating a saw in a saw-mill is an example. In occupations such as driving a motor-vehicle or a train engine there is the risk of serious injury to others as well as to the diabetic himself. But what, in fact, is the accident rate amongst diabetics compared with the accident rate amongst the general population of non-diabetics in the same occupations?

Sickness.—In addition to possible illness from the diabetes itself, diabetics are exposed to all of the illnesses to which non-diabetics are exposed. But what, in fact, is the absenteeism from illnesses amongst diabetics compared with the absenteeism rate amongst non-diabetics in the same occupations?

As yet, there have been very few studies of these questions in industries, but a few have been made, and, in general, they tell the same story.[5 to 8]

Healing of wounds.—Easiest to answer is the question about healing of wounds, because of the many thousands of experiences in hospitals with large skin incisions for major operations. For these incisions, the skin is sterilized. The risk of infection is, therefore, negligible. During the last twenty-five years, however, I do not recall a single case where the necessary operation was not performed because of possible delayed healing of the postoperative wound.

In addition, there are the many more thousands of accidental skin injuries, where infection was a definite hazard, yet from all of these experiences in hospital practice, it may be definitely stated that the *average* rate at which these accidental wounds healed in diabetics in whom the diabetes was properly controlled did not differ significantly from the average rate amongst non-diabetics.

There are also the experiences with minor injuries in office practice. It is my routine to ask every diabetic at every visit about the occurrence of minor cuts and bruises which had not re-

quired hospital treatment, and from these histories it may also be stated that the average experience in a large group of properly controlled diabetics did not differ appreciably from the average expécted in non-diabetics.

Ill-health in general.—As stated, in addition to being exposed to all of the other illnesses to which non-diabetics are exposed, diabetes itself is capable of causing illness. Of interest, therefore, here are the findings of a survey made by the Department of Labour of the United States in 1946 and 1947.[6] This survey included 109 plants, and one of the questions was: What was the percentage of diabetic workers who had *no absences* whatever from work because of illness, compared with the percentage of no absences amongst the other workers? And here was the answer: Amongst the diabetics it was 23.5%; and amongst the non-diabetic workers it was not much higher, namely, 26.3%.

What was the absenteeism rate expressed in terms of scheduled work days amongst the diabetics, compared with the rate in the "unimpaired control group"? Amongst the diabetics it was 4.4 per 100 scheduled work days, and in the "unimpaired control group" it was much lower—3.1 per 100 scheduled work days. But this was not the whole story. The proportion of individuals with absence rates up to 2 per 100 scheduled work days was *identical* in the diabetic and control groups. The difference between the groups was accounted for by a very few diabetics with a high absenteeism.[6]

Violent non-occupational deaths.—I have, for many years, been impressed with the low mortality amongst my diabetics from violent causes in general. It would appear that, since a large proportion of diabetics take insulin and thus are exposed to the possibility of insulin reactions and thus mental confusion, diabetics would be particularly liable to violent deaths as pedestrians on streets and highways, and at work and at play. In fact, one of my deaths shortly after the discovery of insulin was a death of a boy from drowning, as the result of an insulin reaction while he was swimming. Actually, however, the experiences with diabetics have been very *much better* than those with the general population of non-diabetics. In my own experience, about 2% only of all deaths have been violent deaths, which agrees with the experiences of Dr. E. P. Joslin with a still larger group of diabetics;[9] whereas, in Canada, as a whole, according to the latest available annual reports, of 117,725 deaths, 7,666 were violent deaths (excluding suicide)—an incidence of approximately 6%.[10]

Violent occupational deaths.—But particularly relevant here are occupational deaths. In my experience, occupational deaths have accounted for less than 1% of all deaths, which also fits in with Dr. Joslin's[7] experiences. The cause of the lower mortality amongst diabetics than amongst non-diabetics is not clear. A possible reason will be seen in experiences with motor-vehicle accidents to be dealt with later.

Injury rate.—Non-disabling injuries are much more common than fatalities and disabling injuries. What, therefore, were the frequency rates from non-disabling injuries amongst the 109 plants investigated by the United States Department of Labour? These were still more impressive; amongst the diabetics it was 7.8 per 10,000 exposure hours, and amongst the "unimpaired group" (non-diabetics) it was 7.4 per 10,000 exposure hours.

Equally impressive, in view of the appreciable percentages of diabetics who require insulin, were the comparative disabling injury rates calculated on the basis of million exposure hours. Amongst the non-diabetics, the rate was 12.9 per million exposure hours and amongst the diabetics it was not much higher—15.6 per million exposure hours. In all, the time lost by diabetics from disabling injuries was less than 3% only of the total time lost.

On a smaller and restricted scale are the findings in an investigation by a large life assurance company of its own employees, who, though they do not employ diabetics knowingly, continue to employ those in whom the diabetes had developed after their employment. Not all were of the clerical staff; 18 were of the maintenance staff, employed in a variety of occupations comparable with those of industrial employment, and these were the findings: Of the 92 such diabetics, 89 were at work. Of three diabetics on permanent disability, in one case the diabetes was not the cause of the disability.[7]

In all, therefore, as Dublin and Marks put it

> ". . . the work records of diabetes in industry is satisfactory. The great majority of those who are under reasonably good medical care can carry on their jobs as well as non-diabetics and as well as they did before the onset of the disease. . . . They do well enough to warrant their continued employment without restriction, except in a very few jobs."[7]

Mental stability.—Mental stability is an important attribute of employees, and from the chron-

icity of diabetes; from the need of constant attention to diet; the inconvenience of insulin injections; the discomfort at times from them, superimposed upon anxieties common to all, diabetic and non-diabetic, it would appear that the diabetic is in a constantly disturbed state of mind and thus unfitted for employment, at least in responsible positions; but this is very far from the truth. To the extent to which the suicide rate is an index of mental stability, diabetics, as a group, appear, in fact, to be *more* stable than non-diabetics. Amongst my own diabetics, suicide has accounted for less than one-half of 1% of all deaths, which is about one-half only of the suicide rate in the population as a whole; according to the latest available data in Canada, amongst the last 117,725 deaths, 948 were due to suicide—an incidence of 0.81%.[10] The same applies to the United States; whereas, amongst Dr. Joslin's diabetics about one-half of 1% only of the deaths were due to suicide, in the general population of non-diabetics suicide accounted for *over* 1%.[11]

But this is a minor consideration. Far more impressive is the list of diabetics who held, and who are now holding, the highest executive posts in industry, finance, law, politics, education and religion. To my knowledge, in Canada, it includes presidents of four of our largest industries, a general manager of one of our leading banks, and other senior bank officials, four judges, including a Chief Justice, Prime Ministers of two of our Provinces, a high dignitary of the Catholic Church, and this list could be multiplied many times by all others who have made diabetes their particular field of interest. To exclude diabetics, therefore, merely because they are diabetics, as the Committee of the Association of American Railroads referred to would, would thus, to put it at its best, be ridiculous. To my knowledge, this Committee would have to exclude at least a president and three other high executives of their own railroads.

Insulin and occupation.—Admittedly, no diabetic who is taking insulin should engage in work where even the slightest insulin reaction would expose him or others to the risk of grave injury, for, despite all of the improvements in insulin, no insulin and no amount of insulin, small as the dose may be, protects completely against insulin reactions. But, with extremely few exceptions, none of these occupations is excluded when no insulin is required to control the diabetes. Furthermore, often, though excluded from hazardous occupations, in industry there are other occupations to which the worker could be assigned. Appropriate examples here are railroad employees.

An engineer who requires insulin should not be allowed to drive an engine on a main line, passenger or freight service, but there is little reason to exclude him from employment as an engineer in yard operations. Yard service in general requires slow movement within the confines of the yard limits wherein switching of freight cars, etc., are carried out. Regardless, therefore, of their duties, and whether they do or do not require insulin, there is little reason to exclude yard service men so long as their general health permits.

A brakeman is involved in train protection. A brakeman, therefore, who requires insulin should be removed from such duties, but there is very little reason not to transfer him to duties in baggage cars. A mechanic whose duties require working at heights is exposed to great risk if he is taking insulin, but there are ways of employing his skill in work-shops and ground work in general. In the case of "general duty" employees, such as office workers, there is little reason to exclude any diabetic, whether insulin is or is not required to control the diabetes, provided the employee is in good health otherwise.

The policies of both of our large railroad companies in Canada—The Canadian Pacific Railway and The Canadian National Railway—are of interest here.* Both have diabetics even in the running trades. Neither permits a diabetic who requires insulin to drive an engine on a main line, passenger or freight service, but both permit them to operate engines in yard service, and one even permits engineers to continue service on selected branch lines. A fact to be noted here is that, in both railroads, amongst their yard service men, including engineers, there has been no known instance of a diabetic having been involved in a train accident. Despatchers who require insulin cannot be allowed to engage in the handling of train orders, and conductors are involved in train protection, but in a railroad company there are many other less hazardous occupations to which they can be assigned. No office worker, whether insulin is or is not required to control the diabetes, is excluded

*Dr. K. E. Dowd, Chief Medical Officer, Canadian National Railway and Dr. Charles P. Fenwick, Chief of Medical Services, Canadian Pacific Railway. Personal Communications.

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provided the health is satisfactory otherwise. Mechanics who require insulin and who work at heights are assigned to ground work. Shop workers who require insulin are restricted to ground work. Operators of machine tools and other dangerous machines are given the opportunity to use their skills at less hazardous positions. In one of these companies new applicants are accepted for non-hazardous occupations, provided the diabetes is under adequate control, and provided the applicant can produce a medical certificate that he is free from complications, such as hypertension, etc.

Insulin was discovered by a Canadian. The first life assurance company to accept diabetics as policyholders knowingly was a Canadian life assurance company and as examples of the proper attitude of industry towards employment of diabetics here are two Canadian railroads.

Motor-vehicle drivers.—Should a diabetic who is taking insulin be allowed to drive a motor-vehicle (car, truck, etc.) or any vehicle? To exclude insulin-treated diabetics from such occupations would make it necessary for many thousands of diabetics to seek other means of employment.

One means of finding the answer to this question is to compare the "claim frequency" for injuries to persons and damage to property of others amongst diabetic drivers compared with such "claim frequency" amongst the general population of non-diabetics. This alone would not give the complete answer, since many cars are not insured. (In the Province of Quebec, I have been informed about 40% are not insured). It would, however, serve as some guide.

As yet, no such study has been made, but, from the experiences with many hundreds of my own diabetics who have been taking insulin and driving cars for many years, my impression is that, amongst these diabetics, the "claim frequency" has been very much less than 129 per 1,000 insured cars, the figure for Canada as a whole in 1950.

But impressions are not facts. Significant, however, are the comparative mortalities from motor-vehicle accidents. In large populations, these account for between about 1.5 and 2.0% of all deaths from all causes. In the United States, for example, according to the above-mentioned Annual Report, of the 1,444,337 deaths, 32,259 were due to motor vehicle accidents—an incidence of 2.2%. In Montreal, in 1950, according to the last Annual Report, of 9,802 deaths, 150—an incidence of 1.53%—were due to motor-vehicle accidents.[12] Therefore, it will be noted that, in the general population as a whole, motor-vehicle accidents *alone* accounted for as many deaths as from *all accidents combined* amongst diabetics—motor-vehicle traffic and non-traffic; other road vehicles; accidental poisoning, falls; water transport, air-craft personnel and other accidents.

For these striking differences between diabetics and non-diabetics in favour of diabetics there are probably two reasons: First, the diabetic knowing that he is exposed to the risk of an insulin reaction is much more likely to drive carefully than a person who is not so exposed. Second, in my cases, are the conditions under which I permit my diabetics to drive motor-cars; that is, no later than two hours after breakfast, lunch or the evening meal (if driving at night), the driver, *while driving,* must take a cube of sugar (slightly less than one-half teaspoonful) and, *so long as he is driving,* continue to take one such cube *every fifteen minutes until the next meal.* This is based upon the fact that, whereas, in a normal group, a meal almost invariably increases the sugar content of the blood, and not until two hours later does the sugar content, as a rule, return to the normal level, in a diabetic not only is the rise in the sugar content of the blood after a meal generally much more marked than in a normal person, but the return to the normal level is much slower.

This practice does not complicate the management of the diabetes. Since present-day diabetic diets are quite liberal with respect to carbohydrate content, and since about six or seven of such cubes of sugar are the equivalent of no more than the carbohydrate content of one slice of bread about four inches square and one-half inch thick, all that is necessary in order to avoid intake of carbohydrates in excess of that allowed in the diet is to subtract one such slice of bread from the diet for every six or seven cubes of sugar consumed.

Insulin vs other drugs.—Parenthetically, it is to be noted here that there is very much confused thinking on the subject of driving of motor-cars and engagement in other hazardous occupations, while under the influence of alcohol or drugs. Much is written and said about the driving of motor-cars while under the influence of alcohol and rightly so; when a policeman after a motor accident asks the driver whether he had been drinking alcohol, he is asking a very important

question. But how often is this question asked: Did you take a *sleeping-pill* last night? Yet, the barbiturates are amongst the most commonly used drugs,[13] and one of their common after effects is some degree of *drowsiness the following morning*, and thus reduced ability to think and to act with the necessary speed in an emergency. In fact, it is because of their depressant action on the brain that the barbiturates are employed clinically to induce sleep. The soporific effects of the anti-histamine drugs are other examples; yet, whereas, about one-half of 1% only of the general population are diabetics who are taking insulin, the percentage of the general population who are using the barbiturates, the anti-histamine and other drugs capable of causing drowsiness is, I believe, putting it very conservatively, at least ten times as great. Assuming one and one-half grains is the average dose of a barbiturate, in one year, about 800,000,000 doses were sold in the United States by prescription.[13] Considering the ease with which these drugs were obtainable without prescription, because some of the States had no laws regulating the sale of the barbiturates,[14] there can be very little doubt that the number of doses used was much larger; yet, though no railroad company would tolerate engineers, trainmen, conductors and yardmen drowsy from alcohol while in the performance of their duties, how much do railroads know about accidents due to drowsiness of engineers, trainmen, conductors and yardmen from use of barbiturates, from the anti-histamines and from a large number of other drugs, one of the after effects of which is drowsiness?

Pension plans.—Many industrial organizations now have pension and other plans that are dependent upon a normal expectation of life, and diabetics, as a group, are particularly susceptible to diseases of the heart and arteries which reduce the expectation of life. Coronary artery disease, for example, is about twice as common in male and about three times as common in female diabetics as in the male and female populations of non-diabetics. But, for such hazards, there are now available, as guides for estimating *additional* payments into such plans, the experiences of life assurance companies, and it is gratifying that it is a Canadian life assurance company—The Manufacturers Life Insurance Company—who has been the first to pioneer in this field and has the best available data to-date.

This company began to insure diabetics in 1940. With no previous experience, as no company had before then insured diabetics wittingly, it was necessary to exercise caution, yet, with an additional premium and certain other precautions, so satisfactory have been the experiences that the original premium rates have been so reduced that it means a considerable reduction of the extra rates for the higher priced plans.

A factor which had to be considered was the possibility of a "piling" effect and thus eventually a higher mortality than had been allowed for. Many years ago, Frederick M. Allen demonstrated the absence of an inherent tendency for the diabetes to become worse in the partially depancreatized animal. One of the most encouraging findings, therefore, in an investigation of my cases with the co-operation of this Company was the same finding in man.[15]

A difficulty which would arise is where pension rights begin from the first day of employment and where trade unions would not permit a "rate up" because of the diabetes. Here, obviously, it would not be the employer who would require education, but the trade union.

Illness plans.—Allowing for illness alone is still more simple. All that is necessary is to set a maximum of the number of days in a year from which the diabetic employee could benefit. This, in fact, would serve another purpose; in addition to limiting the employer's risk, it would put the onus on the diabetic to follow his treatment carefully so as to keep at a minimum the risk of illness because of the diabetes.

Gangrene.—Gangrene has been repeatedly stressed by the Association of American Railroads as a particularly grave hazard. The incidence of gangrene of the extremities is much higher in diabetics than in non-diabetics; about 3 to 5% of all admissions of diabetics to general hospitals are for the treatment of this complication. But what, in terms of total population of diabetics, is the incidence of gangrene? And, whatever, the incidence may be, is it, or is it not, possible to reduce it by proper management of the diabetes? To this question some attention was given in the above-mentioned study in 1946. The question then was not what was the incidence, but what was the *unavoidable* incidence, that is, the incidence, despite the fact that the treatment of the diabetes prescribed had been followed reasonably carefully? and these were the experiences: Amongst approxi-

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mately 1,500 diabetics during a period of five years, there had been *three amputations* only.[15]

Functions of industrial physicians.—It is thus clear that medical officers of industrial organizations can render service to our diabetic population in a number of ways. They have their duty not only as physicians but also as citizens. In fact, of the two, the duty of citizenship comes first.

By collecting data on absenteeism and accident rates amongst the diabetics of their respective organizations, they will be able to supply the necessary information of the risk of employing diabetics in their respective industries, thus separate impressions from fact and thus rectify the many misapprehensions which now exist in industry and labour.

To enable him to properly advise his industry in accordance with advancement of knowledge of diabetes, no less is it the duty of the company physician to keep posted with all advances in the management of the diabetic, and, as a time saver, no better journal can be recommended than *Diabetes,* the official journal of the American Diabetes Association, for in it is abstracted the world's literature on the subject.

Company physicians have another duty. Legally, an employee who had been injured while at work and is under the care of the company physician is as much the patient of that physician as he would be were he that physician's patient in private practice; the company may be paying the physician's salary, but *a company cannot practice medicine.* But, far transcending this legal aspect, is the ethical obligation to do the best for his patient and, therefore, knowing the employee is a diabetic, a duty of the company physician is to gain the diabetic's confidence. As in ordinary physician-patient relationship, the diabetic should be made to feel the doctor is his friend and confidant, for, without that feeling—with the belief that the physician is working in the interest of the company only—the diabetic employee will not report minor ailments and minor injuries such as cuts and bruises, with the result that they may cease to be minor, increase the absenteeism rate and thus still more prejudice the company against employing diabetics.

Between-meal feedings.—Between-meal feedings, particularly of carbohydrates, have been shown to have a markedly beneficial effect upon physical efficiency.[16] Some years ago, I found that this applied almost equally to the diabetic.[17] In the insulin-treated diabetic, such feedings have the added advantage of reducing the risk of insulin reactions. Therefore, when between-meal light feedings are possible (such as an apple, an orange or two or three biscuits)—a practice which is becoming increasingly common in large industries—in the case of the diabetic, the company physician should make this compulsory.

Night clinics for diabetes.—The time, I believe, has also come that, in large industrial centres such as our own city, hospitals give consideration to night clinics at least once a week, so that diabetics may have the benefit of regular attendance without having to absent themselves from work and thus also help to keep the absenteeism rate at a minimum.

Duty of employee.—Finally, as employers have their duty as citizens; as the industrial physician has his duties, so also has the diabetic a duty. Whether rightly, or wrongly, he should recognize that he is being selected against. Any action on his part, therefore, that might encourage such selection is not only detrimental to himself but to all other diabetics. He should, therefore, recognize that, if he is not taking insulin, failure to follow diet prescribed may result in illness and thus in an inexcusably high absenteeism rate. Still greater is his duty to follow his diet if he is taking insulin, because of the risk of an insulin reaction from irregular food intake. This applies particularly to those engaged in strenuous work. Wherever between-meal feedings have been instituted, these feedings should be regarded by himself as compulsory, whether he is or is not hungry. Where the industry has not instituted between-meal feedings, and where an apple or an orange or some other carbohydrate-containing food is not practical, one cube of sugar every fifteen minutes while at work, commencing no later than two hours after the last meal, should be an invariable rule. Nothing is capable of upsetting a factory or an office routine more than an insulin reaction. To those who have never seen such a reaction, it can be very frightening. Cuts or bruises, minor as they may appear to be, should be reported as soon as possible, for any delay increases the risk of infection and thus the risk of increasing the absenteeism rate. Diabetic diets are restricted in calories. No diabetic, therefore, can afford to waste calories. Therefore, whenever it is possible to rest, such as during meal hours, or for any other reason, even for a

few minutes only, full advantage should be taken of the opportunity. These precautions he owes to himself, as well as to all other diabetics, and to his employer.

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THE BILLROTH I GASTRECTOMY

JOHN A. BARCLAY, F.R.C.S.(Edin.),
Drumheller, Alta.

IT IS ONLY RECENTLY that surgeons have had the opportunity of studying the later results of partial gastrectomy carried out for simple peptic ulceration, and the numerous articles written on post-gastrectomy states give a picture which tempers the initial enthusiasm which greeted this radical treatment.

These syndromes have been listed under various titles, of which the commonest is the dumping syndrome proper where there is a hypoglycæmic reaction to an excess of insulin in response to a too rapid absorption of carbohydrate, but include overdistension of the jejunum due to too rapid filling of food through the stoma, distension of the afferent loop believed due to an excess of afferent loop with resulting stasis of bile and pancreatic juices and possibly to some emptying of food the "wrong way", and the symptoms caused by drag on the unsupported stomach either by the loaded colon or by the jejunum itself where ante-colic anastomosis has been used. These states, with the others described, are all mechanical in cause including the first where the initial high glucose level which stimulates insulin is a direct result of too rapid emptying of the stomach, and can, as a rule, be prevented and relieved by lying down immediately after a meal. This is in contrast to the "natural" distension, known as long as gastrectomies have been performed, only to be expected where three-quarters of the receptacle has been removed. This fullness is immediate on eating and is relieved by cutting down the bulk, chewing the food well and avoiding liquids with the meal.

These symptoms vary in severity and from patient to patient. Some psychiatrists maintain that many of them are psychopathic in origin and a direct result of the "ulcer make-up". This has led to surgeons assessing their patients preoperatively and tending to reject those whom they decide are likely to return with exaggerated and very often vague complaints.

With these complications in mind, and the attractive rationale of vagotomy, especially if accompanied with posterior gastroenterostomy, many surgeons have been induced to adopt these operations, and the Billroth I has achieved renewed popularity because of its sound physiological basis and the freedom it gives from these post-gastrectomy upsets.

The Polya operation, or the gastro-jejunal anastomosis, the cut lining of the gastric remnant being the anastomotic surface, has been modified over many years but remains the most popular gastrectomy in use. To minimize the dump and to lessen the tendency of regurgitation, including regurgitation into the afferent loop, the Hofmeister valve is usually constructed with the anastomosis isoperistaltic. The posterior Polya, or retrocolic operation is usually done because it avoids the long loop, and to lessen the drag of the transverse colon on the stomach there is an increasing tendency to have the opening in the mesentery as far to the left as possible where support is given by the fixed splenic flexure.

The objections to the Billroth I operation with its natural union of the stomach and the duodenum are as follows. To enable the anastomosis to be done without tension insufficient stomach is removed. In duodenal ulcer scarring and ad-

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herence may make the anastomosis difficult or impossible. The presence of Billroth's dangerous angle.

To bring the stomach down without tension and facilitate the union it is necessary to mobilize it and the duodenum effectively. If the stomach is to be freed sufficiently the vasa brevia must be divided so that at the most only two or three vessels are left. A deep lighted retractor is necessary. The division should be carried so high that the reflection of the peritoneum on the greater curve on to the diaphragm can be seen. The greater curve is now free to swing down without any restriction. The lesser curve, if to be mobilized as efficiently, is freed by dividing the left gastric artery as it comes off the cœliac axis and not just caught adjacent to the stomach wall.

It is not always possible to mobilize the duodenum sufficiently to do the Billroth operation, indeed this is the common cause of failure. Infiltration and adherence of the ulcer, especially to the pancreas, may make it out of the question. In the majority of cases it is possible. The right gastric and gastro-duodenal vessels must be caught low in the stump which is freed as far as possible by careful dissection.

The dangerous or fatal angle, somewhat unjustly named after the distinguished originator of the operation, is formed between the superior surface of the duodenum and the closed portion of the stomach. It was so christened because of the frequency with which perforation occurred postoperatively at this site. It was conceded that the blood supply of the stomach at this point was insufficient and that necrosis and subsequent perforation would occur, though it is difficult to appreciate why the deficiency should be so selective. Accordingly, the view is being more held that the angle achieved its notoriety from insufficient attention to securing a watertight closure at this point. It is necessary to pay special attention to this area and ingenious sutures have been devised and improved to "turn the corner" and are similar to those used by most surgeons in turning from the posterior layer of an anastomosis to the anterior. Further assurance can be obtained by inserting one interrupted suture across the closed stomach at this angle. When the union is complete the suture is carried across the adjacent serous coat of the duodenum. When tied the angle is effectively buried.

With the stomach and duodenum joined the lesser omentum is reconstituted. The gap which lies between the cut portions above and below is closed with interrupted stitches, the closed portion of the stomach which now lies similar to the lesser curve being included in this reconstruction.

What advantages has this Billroth I operation? We have seen that the gastro-jejunal or Polya operations are most liable to result in the dumping and similar syndromes and that these alone, apart from the reduced operative risk, have diverted surgeons to the vagotomy and gastroenterostomy procedures yet to be fully judged. The Billroth I reduces to a fraction the incidence of these syndromes. That alone should give it priority. The other common complications of gastrectomy, *viz.*, failure to gain weight, macrocytic anæmia and other deficiency states are more a matter of chance, depending upon how radical the surgeon has been in resection and the distribution of the intrinsic factor, etc., and not dependent on the type of operation. One possible objection which appears to have been overlooked centres round the therapeutic effect of a gastro-jejunal stoma. The rationale of gastroenterostomy was to allow extra regurgitation of the alkaline duodenal contents into the stomach so that the excess of HCl was neutralized, the by-passing of the ulcer being incidental unless obstruction was present. This possible advantage, as can be easily verified by postoperative gastric analysis, is not given by the Billroth procedure. Yet it appears, though I do not wish to digress too far, that treatment both medical and surgical based on the neutralization of acid has been given a fair enough trial without any marked improvement in the incidence of cures. It was not until surgeons removed 4/5 of the stomach, including the alkaline pyloric region, leaving an acid secreting 1/5 with its greater concentration over a smaller surface that patients could be offered relief with any degree of certainty.

Æsthetically the Billroth I is a satisfying operation. At the end something is left which looks very like a normal stomach, and certainly functions like one.

SUMMARY

A plea has been made for the greater use of the Billroth I gastrectomy, and the reasons for its selection given. Some points in technique are stressed and some objections analyzed.

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SPONTANEOUS PNEUMOHÆMOTHORAX*

Report of Three Cases

STANLEY L. EIDINGER, M.D. and
ELI H. RUBIN, M.D., *New York*

SPONTANEOUS PNEUMOHÆMOTHORAX not associated with demonstrable pleuropulmonary disease is a rare occurrence. Laennec (1828) appears to have been aware of the condition and Whitaker (1876) is credited with the first case treated successfully. In 1900 Pitt[1] also Rolleston[2] described the syndrome in detail, the former establishing it as a clinical entity even to the extent of recognizing the cause. Since the advent of roentgenography the diagnosis has been made with increasing frequency. This is shown by the fact that up to 1937 Hopkins[3] found only 38 cases of nontuberculous spontaneous pneumohæmothorax reported in the literature. By 1942 Hartzell[4] was able to collect 44 new cases, including four of his own. Several of these had been included in Hopkins' series. Since 1942 we have reports[5 to 34] of 56 additional cases. Undoubtedly a number of reported instances have been overlooked and a far larger number have not been published. With recent advances in the treatment of pneumohæmothorax directed not only at relief of symptoms but also at the prevention of functional impairment of the affected lung, a brief review of the subject seems timely. Our own experience includes three instances of spontaneous pneumohæmothorax, in one of which a second seizure of spontaneous pneumothorax occurred on the contralateral side six months after the initial episode.

Four years later the patient developed symptoms and signs of a neoplasm in the right upper lobe. At operation several blebs were found near the apex which were probably the cause of the spontaneous pneumothorax on that side. One patient was treated with decortication, a relatively new form of treatment of the disease.

CASE 1

H.O., male, 28 years, was admitted to the hospital on January 22, 1948 with a history that the day previously he suddenly felt a severe pain in the left chest radiating to the back, associated with difficulty in breathing. The patient had had bronchitis for a number of years but no other significant illnesses. Examination revealed a very apprehensive individual, dyspnœic with pulse rapid but regular, heart sounds distant. The breath sounds on the left side were absent. A diagnosis of spontaneous pneumothorax was made.

*From the Chest Divisions of the Morrisania City and Seton Hospitals, New York, New York, Eli H. Rubin, M.D., Director.

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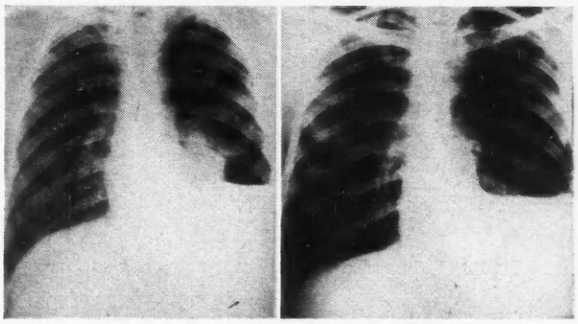

Fig. 1 Fig. 2

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CASE 2

H.C., male, 42 years, had been having an upper respiratory infection for about five weeks when he suddenly developed pain in the left chest and shortness of breath. This followed a severe seizure of cough. The cough and dyspnœa subsided slightly but soon the dyspnœa recurred becoming increasingly more severe. Of interest in the past history was the fact that the patient had had a pleurisy six years previously at which time x-rays were taken and no disease found. Examination revealed a pneumothorax with fluid collapsing about 50%

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herence may make the anastomosis difficult or impossible. The presence of Billroth's dangerous angle.

To bring the stomach down without tension and facilitate the union it is necessary to mobilize it and the duodenum effectively. If the stomach is to be freed sufficiently the vasa brevia must be divided so that at the most only two or three vessels are left. A deep lighted retractor is necessary. The division should be carried so high that the reflection of the peritoneum on the greater curve on to the diaphragm can be seen. The greater curve is now free to swing down without any restriction. The lesser curve, if to be mobilized as efficiently, is freed by dividing the left gastric artery as it comes off the cœliac axis and not just caught adjacent to the stomach wall.

It is not always possible to mobilize the duodenum sufficiently to do the Billroth operation, indeed this is the common cause of failure. Infiltration and adherence of the ulcer, especially to the pancreas, may make it out of the question. In the majority of cases it is possible. The right gastric and gastro-duodenal vessels must be caught low in the stump which is freed as far as possible by careful dissection.

The dangerous or fatal angle, somewhat unjustly named after the distinguished originator of the operation, is formed between the superior surface of the duodenum and the closed portion of the stomach. It was so christened because of the frequency with which perforation occurred postoperatively at this site. It was conceded that the blood supply of the stomach at this point was insufficient and that necrosis and subsequent perforation would occur, though it is difficult to appreciate why the deficiency should be so selective. Accordingly, the view is being more held that the angle achieved its notoriety from insufficient attention to securing a watertight closure at this point. It is necessary to pay special attention to this area and ingenious sutures have been devised and improved to "turn the corner" and are similar to those used by most surgeons in turning from the posterior layer of an anastomosis to the anterior. Further assurance can be obtained by inserting one interrupted suture across the closed stomach at this angle. When the union is complete the suture is carried across the adjacent serous coat of the duodenum. When tied the angle is effectively buried.

With the stomach and duodenum joined the lesser omentum is reconstituted. The gap which lies between the cut portions above and below is closed with interrupted stitches, the closed portion of the stomach which now lies similar to the lesser curve being included in this reconstruction.

What advantages has this Billroth I operation? We have seen that the gastro-jejunal or Polya operations are most liable to result in the dumping and similar syndromes and that these alone, apart from the reduced operative risk, have diverted surgeons to the vagotomy and gastroenterostomy procedures yet to be fully judged. The Billroth I reduces to a fraction the incidence of these syndromes. That alone should give it priority. The other common complications of gastrectomy, *viz.*, failure to gain weight, macrocytic anæmia and other deficiency states are more a matter of chance, depending upon how radical the surgeon has been in resection and the distribution of the intrinsic factor, etc., and not dependent on the type of operation. One possible objection which appears to have been overlooked centres round the therapeutic effect of a gastro-jejunal stoma. The rationale of gastroenterostomy was to allow extra regurgitation of the alkaline duodenal contents into the stomach so that the excess of HCl was neutralized, the by-passing of the ulcer being incidental unless obstruction was present. This possible advantage, as can be easily verified by postoperative gastric analysis, is not given by the Billroth procedure. Yet it appears, though I do not wish to digress too far, that treatment both medical and surgical based on the neutralization of acid has been given a fair enough trial without any marked improvement in the incidence of cures. It was not until surgeons removed 4/5 of the stomach, including the alkaline pyloric region, leaving an acid secreting 1/5 with its greater concentration over a smaller surface that patients could be offered relief with any degree of certainty.

Æsthetically the Billroth I is a satisfying operation. At the end something is left which looks very like a normal stomach, and certainly functions like one.

SUMMARY

A plea has been made for the greater use of the Billroth I gastrectomy, and the reasons for its selection given. Some points in technique are stressed and some objections analyzed.

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SPONTANEOUS PNEUMOHÆMOTHORAX*

Report of Three Cases

STANLEY L. EIDINGER, M.D. and
ELI H. RUBIN, M.D., *New York*

SPONTANEOUS PNEUMOHÆMOTHORAX not associated with demonstrable pleuropulmonary disease is a rare occurrence. Laennec (1828) appears to have been aware of the condition and Whitaker (1876) is credited with the first case treated successfully. In 1900 Pitt[1] also Rolleston[2] described the syndrome in detail, the former establishing it as a clinical entity even to the extent of recognizing the cause. Since the advent of roentgenography the diagnosis has been made with increasing frequency. This is shown by the fact that up to 1937 Hopkins[3] found only 38 cases of nontuberculous spontaneous pneumohæmothorax reported in the literature. By 1942 Hartzell[4] was able to collect 44 new cases, including four of his own. Several of these had been included in Hopkins' series. Since 1942 we have reports[5 to 34] of 56 additional cases. Undoubtedly a number of reported instances have been overlooked and a far larger number have not been published. With recent advances in the treatment of pneumohæmothorax directed not only at relief of symptoms but also at the prevention of functional impairment of the affected lung, a brief review of the subject seems timely. Our own experience includes three instances of spontaneous pneumohæmothorax, in one of which a second seizure of spontaneous pneumothorax occurred on the contralateral side six months after the initial episode.

Four years later the patient developed symptoms and signs of a neoplasm in the right upper lobe. At operation several blebs were found near the apex which were probably the cause of the spontaneous pneumothorax on that side. One patient was treated with decortication, a relatively new form of treatment of the disease.

CASE 1

H.O., male, 28 years, was admitted to the hospital on January 22, 1948 with a history that the day previously he suddenly felt a severe pain in the left chest radiating to the back, associated with difficulty in breathing. The patient had had bronchitis for a number of years but no other significant illnesses. Examination revealed a very apprehensive individual, dyspnœic with pulse rapid but regular, heart sounds distant. The breath sounds on the left side were absent. A diagnosis of spontaneous pneumothorax was made.

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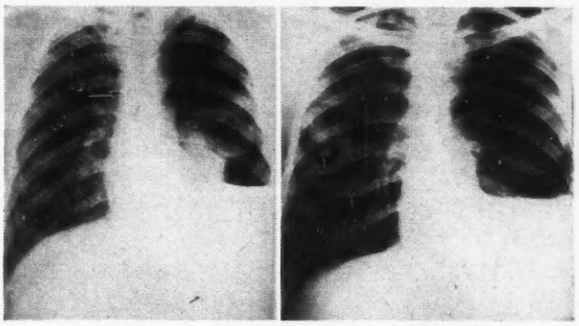

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of the left lung (Fig. 2). Aspiration revealed frank blood. The fluid was removed in amounts of 400 to 500 c.c., followed by intrapleural instillation of penicillin. The patient's condition improved rapidly and the lung re-expanded. Subsequently x-ray examinations failed to reveal any signs of parenchymal disease.

CASE 3

P.O., male, 34 years, on July 19, 1950 while standing on the steps of the Morrisania City Hospital suddenly experienced pain in his right chest. The pain was sharp, did not radiate and was of short duration. He was able to walk home and climbed several flights of steps. That night, however, he was unable to sleep because of shortness of breath. The chest pain and dyspnœa became worse the following morning. He consulted his family physician. While standing behind the fluoroscopic screen he collapsed and was taken to the hospital. Except for pneumonia at the age of 9, he had been in good health prior to this illness.

Physical examination on admission revealed a pale, thin, apprehensive, orthopnœic patient. He was in acute respiratory distress, but not in shock. B.P. was 100/60, pulse 120. The right hemithorax did not move normally on respiration. There was hyper-resonance, diminished tactile fremitus and almost absent breath sounds on the right. The point of maximal cardiac impulse was in the left anterior axillary line. The remainder of the physical examination was negative. A diagnosis of spontaneous pneumothorax was made and a chest aspiration immediately done with the removal of 450 c.c. of air and pure blood which did not clot. An x-ray of the chest immediately afterwards revealed complete collapse of the right lung with a fluid level and shift of the mediastinum to the left. A long, slender adhesion could also be visualized above the fluid level which suspended the lung from the apex of the thoracic cage (Fig. 3). Another thoracentesis was performed and a transfusion of whole blood given with some improvement in the patient's condition. A few hours later, however, he became pale, developed clonic convulsions and went into collapse. An immediate thoracentesis was performed with the removal of 1,000 c.c. of air and 100 c.c. of blood. The initial manometric readings were +10,+12; the final pressure −8–6. There was immediate cessation of the convulsions and dyspnœa.

During the next few days the patient was able to lie flat in bed and there was definite symptomatic improvement. He received a total of 2,000 c.c. of blood. The hæmoglobin was 10.5 grams or 82%. The sputum failed to reveal acid fast organisms. Another aspiration was performed with the removal of 650 c.c. of blood followed by instillation of penicillin. He was also receiving intramuscular penicillin daily. In spite of clinical improvement, x-ray examinations of the chest revealed the presence of considerable blood loculated in the pleural cavity (Fig. 4). Additional attempts at evacuation of the blood were unsuccessful because the blood had clotted. The patient's temperature showed daily fluctuations of 103 to 104°. In view of the persistent fever, and the presence of a clotted, possibly infected, hæmothorax, he was transferred to the Thoracic Surgical Service. On August 18, a decortication of the right lung was performed by Dr. Morris Rubin. The lung was found completely collapsed except for a portion of the upper lobe. The bleeding site could not be determined. Following operation the lung reexpanded completely (Fig. 5). The patient made an uneventful recovery and was discharged on the 10th postoperative day. He has been followed periodically at the Morrisania Chest Clinic.

DISCUSSION

The course of events in the foregoing three cases of spontaneous pneumohæmothorax typifies the major features of the disease. The patient, usually a young individual in apparently good health, is suddenly seized with pain in the chest and dyspnœa. The symptoms may subside temporarily but within a day or two, often sooner, the dyspnœa becomes more severe, the temperature mounts and the individual becomes acutely ill. The pain may be of an intensity and distribution to simulate either acute coronary artery disease or, if it radiates below the diaphragm, an acute surgical abdomen. The symptoms are in keeping with the evolution of the disease to be described presently. If the hæmorrhage in the pleura is sudden or massive there may be circulatory collapse. The cardiorespiratory embarrassment and the associated shock may be sufficient to cause death unless appropriate measures are instituted immediately.

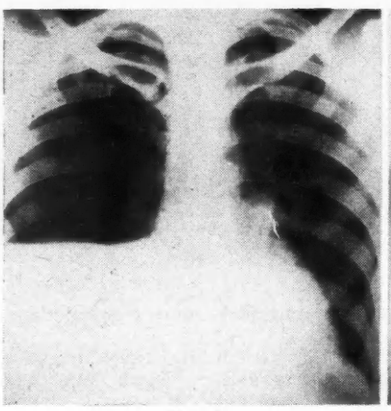

Fig. 3

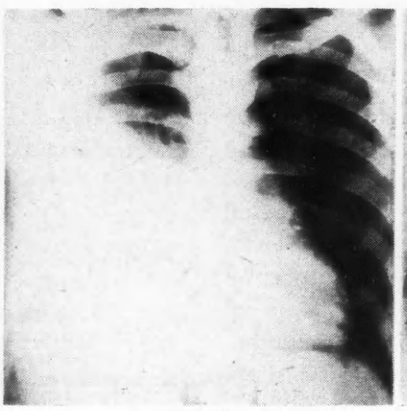

Fig. 4

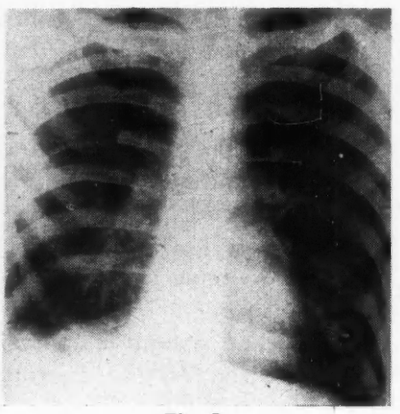

Fig. 5

Fg. 3. (Case P.O.).—Complete pneumothorax on right; long adhesion to apex; fluid in lower third of pleural cavity; heart and mediastinum displaced to left; left lung clear. **Fig. 4.** (Case P.O.).—Three weeks later, pneumothorax absorbed; large accumulation of encapsulated fluid in right chest. **Fig. 5.** (Case P.O.).—One month following decortication, right lung almost completely expanded except for slight pleural reaction at costophrenic sulcus; evidence of resected rib; heart in midline.

The mechanism involved in the development of a spontaneous pneumohæmothorax is the same as that of a simple pneumothorax except for the fact that free blood in the pleura complicates the condition. The term pneumohæmothorax is therefore the correct one since it indicates the sequence of events. It has been definitely established that active tuberculosis is seldom if ever the cause, a belief once widely held. The lung gives way at the site of an emphysematous bleb or through an initial interstitial emphysema which spreads to the surface of the lung and ruptures the viscus.[35] Bleeding into the pleura takes place either from vessels in pleural adhesions torn in the process or from vessels in the wall of the ruptured emphysematous vesicles. The elasticity of the adhesions and their vascularity determine the extent of the bleeding. These factors also account for the frequent delay in the appearance of symptoms and signs of intrapleural hæmorrhage. A recurrence of pain within twenty-four hours after the initial seizure is due to delayed tearing of adhesions, as can be seen occasionally in serial roentgenograms.

There are several interesting features respecting the nature of the blood in the pleural cavity. Its fluid state long after the event depends on two factors: (1) defibrination caused by the churning action of the heart and respiratory motion and (2) a supplementary outpouring of fluid from the lung into the pleura in response to foreign body irritation. Cosgriff[28] found that the essential constituents of blood coagulation; *i.e.* prothrombin, thrombin and fibrinogen, are completely absent from specimens of pleural blood. Furthermore, no anticoagulant activity could be demonstrated. Obviously, clotting had occurred prior to the chest aspiration. Since no evidence of excessive fibrinolytic activity has been shown, it must be assumed that the defibrinated blood is deposited on the pleural surface, an observation frequently noted at autopsy of individuals succumbing to an acute, overwhelming seizure.

The immediate treatment of spontaneous pneumohæmothorax aims toward the relief of shock and loss of blood by replacement of whole blood and the administration of oxygen. In addition penicillin is administered intrapleurally as well as intramuscularly. Mediastinal and cardiac displacement is relieved by aspiration of air and blood. The recent war has shown that blood transfusion is a life saving measure and there is no danger of causing renewed bleeding of a ruptured organ. Beatty and Frelick[34] have reported success following exploratory thoracotomy with ligature of adhesions and the use of multiple absorbable gelatin sponge packs. In most instances, local measures are impractical.

Once the immediate period of danger is passed, a strenuous attempt should be made to release the collapsed lung by repeated chest aspirations of blood and air. Intrapleural and intramuscular penicillin is continued. Until recently, little effort was made to obtain complete re-expansion of the lung and many "cures" left the patient with a fibrothorax and permanent functional impairment of the organ. If the collapsed lung cannot be released by conventional methods because of loculation of fluid, infection or other reasons, fibrinolytic substances (streptokinase and streptodornase) may be introduced into the pleural cavity.[36] These enzymes, derived from certain strains of streptococci, have no lytic effect on organized fibrous tissue nor do they cause necrosis of living cells. The introduction of these enzymes is usually followed by a febrile reaction because of their irritative properties. Used judiciously, these enzymes cause dissolution of clotted blood and thick pus which is drained by aspiration. In many instances, however, chemical debridement does not suffice and decortication has to be done to release the lung of its enveloping adhesions as was employed in the third instance reported.

A careful study of the cases reported since the excellent review by Hartzell[4] reveals no significant information which adds to our understanding of the pathogenesis or the immediate treatment of the disease except for recent advances in the use of fibrinolytic agents and decortication. For the sake of completeness, the bibliography contains references to the cases reported since 1942.

SUMMARY

Three cases of spontaneous pneumohæmothorax are reported which illustrate the major features of the condition. The immediate aim of treatment is (a) to combat shock, hæmorrhage and anoxia by blood transfusions and administration of oxygen; (b) to prevent or counteract infection by antibiotic treatment intrapleurally as well as intramuscularly; and (c) to maintain the heart and mediastinum in their normal positions by repeated aspirations of blood and air.

In the definitive treatment, a determined effort is made to promote complete re-expansion of the lung to prevent impairment of pulmonary function. If repeated aspirations of the chest fail to release the lung, one resorts to intrapleural instillations of fibrinolytic enzymes (streptokinase and streptodornase) to liquefy the blood coagulum and, if necessary, decortication.

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ACTH, CORTISONE AND TUBERCULOSIS*

A. W. CAPON, M.A., M.B., M.R.C.P.,
Weston, Ont.

CORTISONE has been shown to inhibit the formation of granulation tissue and to reduce the function of the reticulo-endothelial system. These facts are of importance in the development of resistance to infection and led Spain and Molomut[1] to investigate the effect of cortisone on the development of tuberculous lesions in guinea pigs and their modification by streptomycin. Tuberculous lesions in those animals which received cortisone were less well localized and more widely distributed than in other groups. Animals treated with streptomycin and cortisone did not show the same degree of healing as those treated with streptomycin alone. The theory that cortisone has fibrinolytic activity was disputed as no action on formed granulation tissue was observed. A warning was given that cortisone might cause a flare-up of latent or quiescent tuberculosis in humans. Experiments by Michael *et al.*[2] using albino rats which are normally resistant to virulent human tubercle bacilli showed that cortisone had a marked effect on this resistance and resulted in widespread tuberculous lesions. Hart and Rees[3] have reported similar findings in mice.

Cummings[4] states that cortisone has no effect on the *in vitro* growth and respiration of the tubercle bacillus. Changes in the response to tuberculous infection when cortisone is given are due to alteration of immune reactions in the host. The tuberculin skin sensitivity reaction is frequently lessened in intensity or suppressed during cortisone therapy, but LeMaistre *et al.*[5] found variable changes in hæmagglutination titres and gamma globulins.

The effects of ACTH and cortisone on active cases of pulmonary tuberculosis are variable. Freeman[6] has reported two cases, in one of which a spread of disease occurred whereas there was no change in the other from a radiological aspect. Symptomatically there was marked improvement in both cases with prompt fall in fever, cessation of coughing, reduction of sputum and fall in sedimentation rate, but these symptoms returned after cessation of therapy. The sputum remained positive throughout. Comden and Netzer[7] treated three cases of far advanced fibrocavernous pulmonary tuberculosis and rheumatoid arthritis with ACTH and noted similar symptomatic improvement, with worsening of the pulmonary disease radiologically in one, and no change in the other two cases after 3½ and 6

*From The Toronto Hospital for Tuberculosis, Weston, Ontario.
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months' treatment with ACTH respectively. LeMaistre *et al.*[8] have reported the results of ACTH or cortisone treatment of seven patients with far advanced pulmonary tuberculosis, four with tuberculous laryngitis in addition. The four with tuberculous laryngitis were deliberately selected so that the effect of the hormones on tuberculous lesions might be directly observed. Cortisone or ACTH resulted in abrupt and profound changes in the course of the illness, characterized by defervescence, a sense of well-being, increase in strength and improvement in appetite. Improvement in phonation and disappearance of dysphagia occurred in those with tuberculous laryngitis and there was reduction of laryngeal œdema and exudate. In all patients the improved state was temporary and could not indefinitely be maintained by further administration of hormone. Two of the patients died. Decrease in density of the lung lesions radiologically was observed in five of the patients.

The experimental evidence led the American Trudeau Society[9] to issue a warning against the use of ACTH and cortisone in the presence of tuberculous infection. However, few reports have appeared in the literature in which these hormones caused an exacerbation of tuberculous disease. Bogen[10] has reported three cases in which ACTH apparently resulted in the appearance of active tuberculous disease. In two cases, one with rheumatoid arthritis and the other with periarteritis nodosa, tuberculosis had not been previously diagnosed: in the former, positive sputum associated with pulmonary disease appeared, and in the latter lymph nodes became larger and biopsy showed tuberculous lymphadenitis whereas biopsy prior to starting ACTH had shown changes of periarteritis nodosa. In the third case pulmonary disease had been stable for two years and when ACTH was given for rheumatoid arthritis the sputum again became positive.

Two patients have been admitted to Toronto Hospital for Tuberculosis during recent months in which administration of cortisone appeared to have influenced tuberculous infection adversely. In each case cortisone had been administered at another hospital.

CASE 1

N.W., 31 year old married woman. She had scleroderma, diagnosed 6 years prior to admission, which had run a progressive course resulting in marked changes in the skin of the face, arms and hands. Seventeen months prior to admission pain and swelling occurred in the region of the left shoulder, and the joint gradually became fixed and relatively painless. Successively the left thigh, right thigh and right arm were involved by painful swellings associated with redness and swelling of the overlying skin. Her symptoms were all attributed to scleroderma and dermatomyositis. In April, 1950, she was treated with cortisone, a total of 4.6 gm. being given over a period of twenty-three days. A small tumour previously noted under the anterior fold of the left axilla became larger and fluctuant. Pus was aspirated from this and also from the left shoulder joint from which tubercle bacilli were cultured. X-ray of the left shoulder showed generalized osteoporosis and erosion of the medial aspect of the head of the humerus. Cortisone resulted in moderate improvement in the symptoms due to dermatomysitis but the remission lasted only 2 or 3 months. There have been no further manifestations of tuberculous disease and the left shoulder joint now shows bony fusion after immobilization in a plaster shoulder spica.

CASE 2

L.C., 48 year old married woman. Four year history of chronic ill health characterized by marked loss of weight, transitory arthralgia and swelling of the small joints of the hands, transitory macular rash on the face, fever, recurrent attacks of pneumonitis which did not respond to antibiotics, swelling of the legs, albuminuria, hyperglobulinæmia and left bundle branch block. A diagnosis of lupus erythematosus disseminatus was confirmed in February, 1951 when the presence of the LE phenomenon was observed in the cells of the sternal marrow. At this time the sputum had been repeatedly negative.

During March and April, 1951, cortisone was given in a dosage of 3.4 gm. spread over 30 days. Rapid but temporary improvement occurred in the patient's condition and this was followed by severe toxæmia, remittent fever and mental confusion. Cough and sputum increased and the sputum was positive for tubercle bacilli on smear and culture for the first time. X-ray of the chest prior to starting cortisone showed moderately dense fibrotic changes at the right base, and one month later miliary tuberculosis was present in the lungs. This was later complicated by tuberculous meningitis. Treatment with parenteral and intrathecal streptomycin and oral PAS since June, 1951, has resulted in considerable improvement but the outcome is still uncertain.

COMMENT AND SUMMARY

There is ample experimental evidence that ACTH and cortisone act adversely on tuberculous infection in animals. In view of this the scanty clinical evidence should, in the present state of our knowledge, be considered significant, although it is appreciated that the few reported cases might have followed the course described without the administration of ACTH or cortisone.

The frequency with which latent or quiescent tuberculous infection flares up as a result of ACTH or cortisone therapy is not known. Many patients have now been given ACTH or cortisone for a variety of conditions, and the number in which tuberculosis was activated appears to be very small. The risk, however, remains and it would appear to be inadvisable to give these hormones to patients with active or quiescent

tuberculosis unless there are clear cut non-tuberculous indications, in which case streptomycin and PAS should also be given. Streptomycin and PAS should be administered during the period of hormone therapy and although there is no available evidence it is probably advisable to continue these drugs for several months after ACTH or cortisone have been discontinued.

ACTH and cortisone have no place in the treatment of tuberculosis and may be harmful.

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ADVENTURES WITH DECAMETHONIUM BROMIDE*

ROLAND DUCHESNE, M.D.,†
Quebec, Que.

THIS REPORT is intentionally not an elaborate scientific document. My only wish is to relate some personal experiences with decamethonium bromide, also called syncurine, a relaxing agent familiar to all of you. Allow me to leave aside the chemical formula of decamethonium bromide and the usual clinical reactions; these you know better than I. In this hospital syncurine has been used quite extensively during the last two years (over 4,000 cases). I feel that this drug is of great value and I do not hesitate to use it. For our mutual benefit I will mention only my difficulties in using this drug.

CASE 1

A 53 year old white female was admitted to the hospital for what was thought to be intestinal obstruction. Urine analysis was normal. Red blood count was 3,200,000 per cm. Hæmoglobin 68%. This patient was found to be group A- RH+ and was cross-matched with two pints of blood. She was slightly jaundiced. Pre-anæsthetic medication consisted of morphine 1/6 and atropine 1/150. She was brought to the operating room and at 2 p.m. intubation was easily performed with pentothal and decamethonium bromide (using a mixture of 500 mgm. of 2½% pentothal and 4 mgm. of decamethonium bromide). Anæsthesia was maintained with cyclopropane and a total of 7 mgm. of decamethonium bromide was given over a period of one and a half hours. No obstruction was found. The liver was slightly atrophic and there were 1,500 c.c. of ascitic fluid in the abdominal cavity. Complete respiratory paralysis followed the injection of the mixture of pentothal and decamethonium bromide and lasted 15 minutes. This was considered normal. Respiration was maintained as usual by manual compression of the bag. Relaxation was maintained with decamethonium bromide, 3 more mgm. being injected up to the closure of the abdomen; one c.c. at a time. Oxygenation, blood pressure and pulse were good all times. The last injection of decamethonium bromide (1 c.c.) was followed by complete respiratory paralysis. After the operation was finished, the endotracheal tube was left in place and connected to the gas machine. The patient was then brought to the recovery room and pulmonary ventilation was maintained by myself until the return of normal respiratory activity. Respiratory paralysis lasted two and a half hours. During that period, colour, blood pressure and pulse were completely normal. A total of a 1,000 c.c. of blood and 500 c.c. of 5% G/W were given. No drug of any kind had been given during that period. At 6 p.m. the patient was conscious, breathing normally and ready to go back to her room.

CASE 2

A 66 year old, obese white woman with chronic bronchitis and hypertension was brought to the hospital for repair of a diaphragmatic hernia. Pre-anæsthetic medication consisted of demerol 100 mgm. and atropine 1/150. Anæsthesia was induced with a mixture of pentothal (500 mgm.) and decamethonium bromide (4 mgm.). The mixture of pentothal and decamethonium bromide was injected slowly and cyclopropane was given at the same time. Intubation was easily performed and the maintenance was uneventful. Relaxation was good. There was moderate respiratory depression and assisted respiration was used. The repair of the diaphragmatic hernia lasted two hours. Exploration of the abdomen showed the liver to be very atrophic. A total of 8 mgm. of decamethonium bromide was used, the last c.c. being injected five minutes before the closure of the peritoneum. This was followed five minutes later by complete respiratory paralysis which lasted three and a half hours. The endotracheal tube was left in place and in connection with the gas machine. Artificial respiration by manual compression on the bag was performed until the return of respiratory activity. Blood pressure and pulse were perfectly normal. There was no cyanosis at any time. Patient had an uneventful recovery.

CASE 3

A fifty year old white woman had cirrhosis of the liver and marked ascites. It was thought that an anastomosis of the portal vein to the inferior vena cava might bring some improvement. The preoperative condition was complicated by anæmia, myocarditis and malnutrition. The patient was brought to the operating room at 9 a.m. Because of cardiac irregularities (she had in fact a right bundle branch block) electrocardiographic tracings were done during the operation. Cardiac irregularities were controlled by procaine given intravenously in a 0.2% dilution, the injection being started before the induction of anæsthesia. Induction took place at 9.15 a.m. Two hundred mgm. of 2½% pentothal were injected slowly,

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†Director of Anæsthesia, St. François d'Assise Hospital, Quebec.

cyclopropane was given for five minutes and 4 mgm. of decamethonium bromide were injected intravenously. After one minute of hyperventilation intubation was performed. No cardiac irregularities were noticed. The anastomosis lasted two and a half hours. The transthoracic approach was not used. Blood loss was minimal. 500 c.c. of blood and 1,000 c.c. of 5% glucose in water were given during the procedure. Severe atrophy of the liver was noted. A total of 7 mgm. of decamethonium bromide was injected, the last c.c. being injected 3 minutes before the closure of the abdomen. Controlled respiration was maintained most of the time. The patient withstood the operation quite well except for a period of 30 minutes during which time blood pressure was 50 over 20; this was coincident with the partial occlusion of the inferior vena cava. After the closure of the abdomen, respiratory activity did not return until three and a half hours. The patient seemed deeply shocked, the pressure was unobtainable and the pulse was weak and rapid. Artificial respiration was carried out and the patient's colour improved some. 500 c.c. of blood were given. One hour after the closure of the abdomen, the blood pressure rose to 100 over 60 and the pulse was better. Spontaneous respiratory activity returned after three and a half hours and was promptly followed by the return of consciousness. The postoperative course was good.

CASE 4

A white female aged 44 had an exploratory laparotomy. She was markedly jaundiced. Pre-anæsthetic medication consisted of demerol 100 mgm. and atropine 1/150. Intubation was done after the injection of pentothal (500 mgm. of 2½% solution) and decamethonium bromide (4 mgm.). Respiratory activity returned after twenty minutes. The surgeon found a carcinoma of the head of the pancreas with obliteration of the common duct. The bile flow was re-established by a cholecysto-duodenectomy. Two more c.c. of decamethonium bromide were injected before the closure. Relaxation was good; 1,000 c.c. of blood and 500 c.c. of 5% glucose in water were given. The operation lasted two hours and 10 minutes. The injection of the last 2 c.c. of decamethonium bromide was followed by complete respiratory paralysis which lasted one and a half hours. Patient's condition was good and nothing was done but artificial respiration. Spontaneous respiratory activity was promptly followed by return of consciousness. She was returned to bed in a good condition.

CASE 5

A white female, 42 years of age was operated on for an obstruction of the common duct. She was very jaundiced. Her general condition however was good. Premedication consisted of morphine 1/6 and atropine 1/150. Induction was carried out with a mixture of pentothal (500 mgm. of a 2½% solution) and decamethonium bromide (4 mgm.). Intubation was easy. Following the injection of pentothal and decamethonium bromide, respiratory activity ceased for fifteen minutes during which time artificial or controlled respiration was done. A stone was removed from the common duct. The duration of surgery was an hour and 45 minutes. A total of 8 mgm. of decamethonium bromide was used, the last dose of 1½ mgm. being injected before the closure. Each injection of syncurine was followed by a decrease in respiratory activity. This last injection (1½ c.c.) was not followed immediately by paralysis of the respiratory muscles as in the previous cases. Paralysis was progressive and was complete fifteen minutes after the injection of the last 1½ c.c. Nothing was done but artificial respiration with a gas machine. Blood pressure, pulse and colour were good. Normal breathing and consciousness returned two hours after the last injection of decamethonium bromide. Postoperative course was normal.

CASE 6

This is the case of a white, 70 year old jaundiced male. His general condition was poor. Premedication consisted of demerol 75 mgm. and atropine 1/150. Pentothal (300 mgm.) and decamethonium bromide (3 mgm.) were used for induction. The mixture of pentothal and decamethonium bromide was injected very slowly and at the same time 100% oxygen was given to the patient. Cyclopropane was used for maintenance. The patient was found to have a carcinoma of the gallbladder. A cholecystectomy was done. There was much bleeding. The operation lasted two hours and ten minutes. Relaxation was easily maintained with a total of 6 mgm. of decamethonium bromide. 1,000 c.c. of blood and 500 c.c. of 5% glucose in water were given. The patient sustained the operation quite well. One hour and a half after the induction of anæsthesia two more c.c. of decamethonium bromide were injected, promptly followed by a complete respiratory paralysis. The operation ended forty minutes later and there was still no sign of muscular activity. The patient had to be kept one more hour in the recovery room during which time artificial respiration was performed. In this case again, nothing was done but artificial respiration, the condition of the patient being good. He was returned to his room in good condition and completely awake.

CASE 7

A white male, 46 years old, a chronic alcoholic had ascites that required frequent punctures. It was believed that an anastomosis of the portal vein to the inferior vena cava would improve his condition. Following the usual tests, the patient was brought to the operating room at 1 p.m. Pre-anæsthetic medication consisted of demerol 100 mgm. and atropine 1/150. We knew from previous experience that this patient would be a likely candidate for respiratory paralysis on account of his probable atrophy of the liver. Intubation was easily accomplished after the injection of pentothal (500 mgm.) and decamethonium bromide (5 mgm.). Cyclopropane was then given and two more mgm. of decamethonium bromide were injected later. Respiratory paralysis was partial and assisted respiration was carried out. Abdominal relaxation did not seem sufficient however for the closure of the abdomen and two more c.c. of decamethonium bromide were injected to make a total of 9 mgm. The operation lasted two hours and 15 minutes. Respiratory paralysis followed this last injection. The patient was kept in the recovery room and artificial respiration was carried out until 5.30 p.m. Although it is well known that prostigmine is not an antidote for decamethonium bromide, the action of decamethonium bromide being analogous to that of acetylcholine itself, one c.c. of prostigmine was injected intravenously at 4 p.m. This was followed by no response. At 5.30 p.m. breathing was normal and the patient was sent to his room in a very good condition. Blood pressure, pulse and colour were good all the times. At no time was there any sign of shock.

Seven cases have been presented in which prolonged respiratory paralysis followed the intravenous injection of syncurine. Among them, four demonstrated significant atrophy of the liver; two were jaundiced and one had both jaundice and atrophy of the liver. The doses injected were considered normal. In most of these cases, nothing was done but artificial respiration with oxygen. In each case, spontaneous respiratory activity was promptly followed by the return of consciousness. There were no ill effects. Some cases of apparent prolonged action of decamethonium bromide have been reported in which

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intercostal activity was greatly impaired at the end of the operation (Harris and Dripps, 1950). In our patients, it is probable that the prolonged respiratory paralysis is more than a coincidence. The effects of the relaxing agent was without any doubt of a longer duration than usual.

Whether or not the liver plays a part in the destruction of syncurine, I do not know. Whether or not there is in the jaundiced patient a substance which prevents or delays the destruction of the relaxing agent, I do not know either. We are anxious to see more surgical cases with jaundice and liver disease. We are planning to use in those cases another relaxing agent and the results will be compared. In reporting these cases, our intention is not to discredit the drug. Decamethonium bromide is a potent and reliable drug in most cases and we still like to use it.

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CASE REPORTS

ACTH IN THE TREATMENT OF MULTIPLE WASP STINGS*

E. STEWART JAMES, M.D. and
W. G. WALKER, M.D., C.M., *Vancouver*

SEVERE ANAPHYLACTIC SHOCK due to wasp stings has been reported in the literature not infrequently, most often occurring after a few stings.[1, 2] Dyke[3] reported two deaths, each following a single sting, in individuals who had been previously stung by wasps.

According to Langer[4] the active principle of bee venom is not formic acid although it is present. The venom retains its activity after the removal of formic acid. Bee and wasp venoms are very similar in composition and action, the former containing a volatile oil, tryptophane, fatty acids, choline and a water soluble acid with a hæmolytic effect. This author differentiates 3 specific effects: neurotoxic, cytolytic and hæmolytic. Dyke[3] suggests that the sudden collapse following the introduction of the venom is due to the neurotoxic factor.

Hobson[5] reported a case of a seven year old boy who died 20 minutes after receiving 30 to 50 stings. There was no history of the child having been stung before. Williams[6] recently reported the case of a 37 year old man who developed anaphylactic shock following five wasp stings. The patient's progress was poor for the first four days when cortisone therapy was instituted. His progress then became much more rapid. This author would have preferred to use ACTH because of its more rapid action but it was not available at the time.

Cluxton[7] reported two cases of venomous poison bites treated with ACTH. The first was that of a 32 year old woman bitten on the dorsum of the hand by a black widow spider. A single intramuscular injection of 40 mgm. of ACTH one and one-half hours later resulted in the dramatic relief of all symptoms and signs within an hour. The second patient was a 40 year old woman who was bitten on the ankle by a copperhead snake. She was given 40 mgm. of ACTH intramuscularly within two hours and this dose was repeated two hours later. Within five hours there was a complete subsidence of the other toxic symptoms and signs. This response at the cellular level occurs from increased adrenal cortical activity secondary to ACTH stimulation. It is possible that the effects of ACTH working through the adrenal cortex may correct abnormalities of the enzyme system at the cellular level by maintaining normal cellular metabolism even in the presence of an abnormal cellular environment.

We wish to report the case of an 18 month old infant who received a very large number of wasp stings and recovered on ACTH and other therapy.

M.B., an 18 month old infant, was admitted to the emergency department of the Vancouver General Hospital on August 26, 1951, one and one-half hours after being stung over most of his body area by a swarm of wasps. At the time of admission there were still 10 live wasps in his clothing and by actual count later it was found that he had received 477 stings. On admission he appeared to be in great agony, rolling and thrashing about the bed. His eyes were completely closed due to facial œdema. The skin was œdematous and was covered with dark red pin point spots. Temperature 104° F., pulse 130 and respirations 40. Examination of oral cavity, lungs, heart and abdomen revealed no abnormalities. Blood pressure could not be determined at this time. He was given phenobarbital sodium gr. 3 intramuscularly; benadryl 50 mgm. intramuscularly; adrenalin 1:1,000 aqueous min. 2 subcutaneously and codeine phosphate gr. ¼ intramuscularly. During the next 6 hours he received 5 subsequent doses of adrenalin, 2 further doses of phenobarbital sodium and one of codeine. During this period he was transferred to the Pædiatric Department where he was placed under restraint in an oxygen tent.

Laboratory tests. Urine: Sp. Gr. 1.021; protein, plus 4; reducing substance, trace; acetone, neg.; microscopic,

*From the Pædiatric wards of the Vancouver General Hospital.

WBC 2 plus. Blood: RBC 4.6 million/c.mm.; Hgb. 12.9 gm./100 c.c.; hæmatocrit 38%; WBC 19,600/c.mm; differential, polys 14%, lymphs. 86%.

ACTH therapy was instituted 8 hours after admission, initially 10 mgm. intramuscularly followed by 5 mgm. every 6 hours. An intravenous drip was started and 1,050 c.c. of 5% dextrose solution given during the first 24 hours. During this period no voluntary micturition occurred. Catheterization August 27 yielded 5 oz. of dark yellow urine which contained protein 4 plus, WBC 2 plus, granular casts 3 plus, hyalin casts 1 plus. NPN was 71 mgm. %, CO_2 combining power 52 vols. %, and blood chlorides 540 mgm. %. Serum Na was 122 mEq./litre, serum K 4.1 mEq./litre. Electrocardiogram was within normal limits, no evidence of K retention.

Throughout the second day the patient was stuporous, but began taking fluids by mouth after 24 hours: B.P. 90/60; temp. 100.8° F.; pulse 140. At 9 a.m. August 28 his blood pressure rose to 135/95. Shortly after this, however, he began voiding spontaneously and during the next four days the urine cleared gradually until it was completely negative by September 1 and remained so. ACTH was reduced to 2.5 mgm. every 6 hours on August 28 and discontinued on August 30, the total dosage being 58 mgm. By this time the patient was considerably improved, the œdema was subsiding and he was able to take a soft diet. On September 4, because of pallor, the blood count was repeated: RBC 2.8 million/c.mm.; Hgb. 7.6 gm.; hæmatocrit 22%; WBC 6,000. The patient was given ferrous sulphate gr. 3 daily and on his discharge on September 15 the RBC was 3.7 million/c.mm. and Hgb. 10.4 gm./100 c.c. Since discharge he has been perfectly well.

DISCUSSION

It was impossible to tell what the effects of ACTH actually were in this case. The patient received 9 gr. of sodium phenobarbital and ½ gr. of codeine in the first six hours so that any relief of pain or discomfort that might have occurred as a result of ACTH was well masked. Also the effect of the sedative drugs was probably prolonged due to poor renal function during the first three days of hospitalization. Whether the subsidence of the œdema or the improvement of renal function was in any way influenced by ACTH therapy is difficult to say. It is suggested that in cases of a similar nature ACTH be given as soon as possible, that the dose be repeated in an hour if necessary and that hypnotic and analgesic drugs be withheld, at least until it is evident that ACTH is not producing the dramatic effects that occurred in the cases described by Cluxton.

Actual anuria did not occur in this case but a well marked oliguria was present for three days. This was possibly due in part to an acute nephrosis of the lower nephron type, but this could not have been very severe as there was no evidence of potassium retention. This temporary renal failure was probably to a great extent prerenal in origin, due to the generalized œdema which must have diminished the renal blood supply considerably.

SUMMARY

The literature dealing with bee and wasp stings has been briefly reviewed. The case of an 18 month old male infant who received 477 wasp stings and was treated with ACTH and other therapeutic agents has been described. No conclusions as to whether the ACTH was of any benefit could be drawn.

The authors are grateful to Drs. A. W. Bagnall and R. A. Palmer for helpful suggestions.

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CARDIAC ARREST

N. L. WILLIAMSON, B.A., M.D.C.M.,
Deep River, Ont.

THERE HAVE BEEN various reports and articles, particularly during the past two years, about the problem of cardiac arrest. In view of the increased thought and prominence given this subject it might be of considerable interest to those working in smaller centres to report a case we had presenting this emergency.

Mrs. J.G., age 38 years, was admitted to hospital February 23, 1950, presenting symptoms of acute appendicitis. She had had a Cæsarean hysterectomy with a bilateral oöphorectomy in January, 1948.

Patient was given a spinal anæsthetic (pontocaine-hypertonic) and sodium pentothal. We had just incised the skin when it was noted that the blood was very dark; there was no obtainable pulse; no blood pressure; no audible heart sounds over the apical area; patient's colour was a deep cyanosis. Artificial respiration by compression of chest was started; an intratracheal tube was passed and oxygen was given by "bagging", using the gas machine; intracardiac injections of coramine 2 c.c. and adrenaline 2 c.c. (1:1,000), were given; there was no response to any of these efforts and the patient was looking extremely poorly. Finally, what we thought a daring undertaking, cardiac massage was done through the abdominal approach; the heart responded within seconds with a slow regular rhythm then sharply increased to a rate of 150 beats per minute; blood pressure also rose to 150 systolic; the patient's colour changed from a cold blotchy purple to a warm pinkish tone; the heart rhythm remained regular, at no time did fibrillation appear present. The period of cardiac arrest was at least seven minutes. The initial operation was completed, an acute appendicitis with peritonitis being reported.

During the postoperative period patient was maintained on oxygen, and intravenous fluids. During the first 24 hours the pulse ranged from 100 to 160 then subsided to about 80; B.P. 120/70 to 146/88; resp. 20 to 24; urine output was 31 oz. for the first 24 hours, 19½ oz. for the second 24 hours, and 44 oz. for the third 24 hours. During the first 24 to 27 hours postoperatively, patient experienced a Jacksonian type of spastic convulsive move-

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ments which gradually decreased in frequency. She very very slowly showed signs of regaining consciousness; after 46 hours she roused sufficiently to show momentary recognition of her husband. Thereafter, she showed gradual but definite improvement mentally as well as physically; she had periods of being irrational but these became less and less. She had a loss of memory that, at first, extended over a period of years but subsequently only extended over a period of days prior to the operation.

Patient was discharged from hospital on the 16th postoperative day. On May 20, 1950 and again about two weeks later she experienced gross hæmaturia, on both occasions following a car drive and on both occasions it cleared completely within 24 hours. A cystoscopic examination with retrograde pyelograms done July 7, 1950 was reported completely normal. She had another bout of hæmaturia a week following the cystoscopic examination but has been asymptomatic since.

During the past year and a half, patient has been well with no apparent serious sequelæ. She carries on a normal daily routine.

SUMMARY

Patient developed a cardiac respiratory arrest following spinal-sodium pentothal anæsthetic, lasting at least 7 minutes; there was no apparent response to the intracardiac injection of adrenaline; there was an apparent immediate response to cardiac massage. The patient first showed evidence of consciousness 46 hours postoperatively; she appears to have made a very fortunate recovery. We are not prepared to state whether or not the hæmaturia was a sequela to the cardiac arrest or an incidental finding.

HERPES GESTATIONIS TREATED WITH TESTOSTERONE

J. A. BEGGS, M.D.C.M., D.G.O.(Dublin),*
Ottawa

MRS. F., age 29, para 1, grav. 2, was seen at the end of her third month of pregnancy. At that time she had developed a patchy bullous eruption involving chest, abdomen, arms, legs and a few patches on the forehead. The chief symptom was itching and it had kept her awake at nights for the previous two weeks. She had had various local treatments, including x-ray, which had not altered the condition.

Checking her previous prenatal record, it was noted that, during the last month of her pregnancy, she had complained of marked itchiness of the skin with the presence of a few erythematous patches about the abdomen and chest. These were tolerated with the use of sedative and local applications. The areas had disappeared by the 8th postpartum day.

*Assistant Gynæcologist, Ottawa Civic Hospital.

The patient was given local applications, but reported in a week that the itching had become so intense that sleep, even with sedative, was impossible and that she was in a state of great prostration. She was visited and was found to have secondarily infected most of the areas and was running a temperature of 101°. She was admitted to hospital for treatment of the secondary infection. The infection subsided with the use of intramuscular penicillin, but the underlying condition remained and was spreading. The itchiness was the predominant symptom. It was felt that, if the condition continued, the future was not promising and termination of pregnancy was to be thought of.

Considering the condition at the end of the first pregnancy and its disappearance after delivery, I wondered if it was not an allergic condition, the result of a particular œstrogen concentration that the body could not tolerate and therefore produced this manifestation.

The patient was given 25 mgm. of testosterone propionate intramuscularly and, at the end of 48 hours, had experienced relief of itchiness and a lessening of the erythema. She was given another 25 mgm. and, within three days, the condition had cleared; except for a small patch on the right forearm. She was kept on 10 mgm. daily sublingual dose thereafter. When the patch on the arm disappeared, the dosage was stopped for as long as a week at a time. When it returned, and a sense of general itchiness was felt, the daily 10 mgm. dosage was recommenced. The patch on the forearm, near the wrist, had been the most involved originally and seemed to be the last to disappear and the first to reappear.

Four weeks before term, the condition again became generalized, but again resolved when the dosage was increased to 10 mgm. twice a day. The patient was delivered spontaneously of a 5 lb. 4 oz. boy, one week before term. The child appeared normal in all respects and has continued to thrive since then. The first child, a female, had weighed 6 lb. 1 oz. at birth.

The mother did not wish to breast feed and the sublingual dosage of 10 mgm. a day was maintained until the 10th postpartum day. There was a minor flare-up at the first menstruation, about seven weeks later, at which time the patient took the 10 mgm. dosage, on her own initiative, for five days. It is now six months since the last episode and she has had no signs or symptoms of recurrence.

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PERNICIOUS ANÆMIA DUE TO DEFICIENCY OF EXTRINSIC FACTOR*

STUART R. TOWNSEND, M.D., *Montreal*

PREVIOUSLY[1] WE REPORTED a case of pernicious anæmia due to a prolonged deficiency of the extrinsic factor and its correction by protein feeding alone. From the literature[2 to 5] at this time it appeared that similar cases had existed but in many patients free hydrochloric acid had been absent, but following treatment normal acid values were found. It was suggested at this time that all stages might exist from an exogenous reversible form of anæmia to the purely endogenous irreversible form, to which the greater number of pernicious anæmia patients seemed to belong. Following this communication we found a number of similar cases and their response to protein feeding proved as satisfactory as in our original experience.

Since the discovery of vitamin B_{12}[6, 7] and its successful use in the treatment of pernicious anæmia when used parenterally[8] it has been suggested[9] that vitamin B_{12} and extrinsic factor may be identical. With this in mind, we have treated orally with B_{12} a similar patient with the picture of pernicious anæmia due to deficiency of extrinsic factor and the response forms the subject matter of this communication.

A female patient, age 41, was admitted to the Montreal General Hospital on June 29, 1950 for investigation. The tentative diagnosis was hyperchromic dietary deficiency anæmia with hypoproteinæmia and nutritional œdema.

The patient had lived in Canada all her life. She had had measles, pertussis, chicken pox and mumps as a child and a nontoxic goitre removed in 1931.

The patient was first seen in 1946 with complaints of headache, blurring of vision and insomnia. Over the years these functional complaints fluctuated with the situation at home. The patient attempted to control her nervousness with sherry and port wine. Her food intake gradually suffered as the intake of wine increased until admission was necessary because of weakness, fatigue with a marked anæmia associated with some œdema of the extremities.

Physical examination revealed a pale overweight female of 160 pounds. The tongue was smooth and with some atrophy of the papillæ. There was no icterus. The head, ears, nose and throat were normal except for upper and lower dentures. There was no adenopathy and no enlargement of the thyroid. The lungs were clear to percussion and auscultation. The heart was not enlarged, the sounds were clear, pulse rate 76 per minute and the blood pressure 120/80. The abdomen was negative for palpable masses or organs. There was no disturbance of sensation, two-point discrimination or vibration sense. The reflexes were normal. The hair and skin were normal in texture but there was some œdema of both feet.

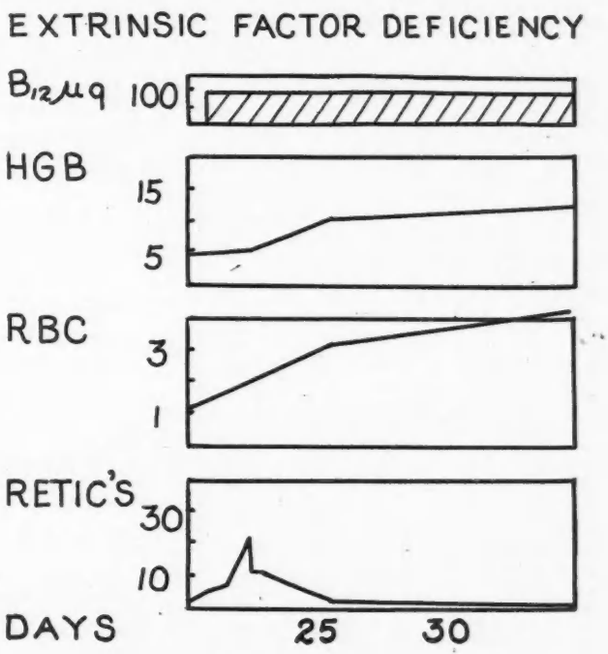
*From the Department of Medicine, Montreal General Hospital, Montreal, Que.

The urine was essentially negative; repeated examinations of the stools for gross or occult blood or ova were negative. The blood Wassermann was negative. Free hydrochloric acid was present in normal amounts in the gastric analysis following stimulation with 7% alcohol. A barium series revealed no evidence of disease of the œsophagus, stomach or duodenum. Fluoroscopy of the chest showed no disease.

Blood chemistry: urea nitrogen 14 mgm. per 100 c.c.; fasting sugar 0.120 gm. %; bilirubin 0.5 mgm. per 100 c.c.; total protein 4.60 gm., albumen 3.83 and globulin 0.77 gm. per 100 c.c.

Hæmatological findings showed: R.B.C. 1,100,000; W.B.C. 4,000; hæmoglobin 30% or 4.68 gm.; red cell diameter 8.6 microns (modal); red cell volume 14%; mean corpuscular volume 127; differential count showed relative lymphocytosis. The patient refused a bone marrow biopsy.

The stools were not analyzed for fat but did not show the features of steatorrhœa, and diarrhœa was not a feature in the past history or while in hospital. On admission the patient weighed 156 pounds (height 5′ 5½″) and was offered a regular diet but refused to eat anything except a small quantity of bread, a few vegetables and some clear tea. All protein was rejected. A basic non-protein diet was maintained and B_{12} was given orally at the rate of 100 micrograms each day.



The response to this regimen is reported in the accompanying chart, which shows a marked reticulocyte response shortly after the institution of B_{12} therapy, a rapid rise in the red blood cells and hæmoglobin with a decrease in cell size such as one observes in the typical pernicious anæmia case. Following the maximum reticulocyte response, the patient experienced a sense of well-being with considerable improvement in her appetite. Subsequently she was placed on a normal balanced diet which was well tolerated. This patient was followed until January 1951 and appeared to be well and moderately adjusted to her domestic situation. Psychiatric assistance has been resisted by the patient and the members of her family. With the resumption of a normal diet, the blood proteins returned to normal levels and no subsequent recurrence of the œdema.

DISCUSSION

Other anæmias of the macrocytic variety likely to produce this clinical picture were con-

sidered. However, the patient showed no signs of idiopathic steatorrhœa, the gastrointestinal tract was normal and there was no evidence of *Dibothriocephalus latus* or other intestinal parasites. In addition the patient showed no evidence of any other disease with which macrocytic anæmia is occasionally associated.

Castle and his co-workers[10 to 13] have shown that the antianæmic factor is produced by the interaction of the "intrinsic factor" found in normal gastric juice and an "extrinsic factor" supplied by the food. It has also been demonstrated that the activity of orally administered B_{12} was identical with that of (extrinsic) food factor.[14, 15] Pernicious anæmia patients in these experiments showed a response to orally administered B_{12} with normal gastric juice, hence it is not surprising that the response obtained in the case presented in this report should be satisfactory.

Presumably an intrinsic factor in gastric juice potentiates the hæmopoietic activity of orally administered B_{12}. The mechanism of this interaction remains obscure. There is the possibility that (1) intrinsic factor merely permits the absorption of extrinsic factor or that (2) they react to form the antipernicious anæmia principle or erythrocytic maturing factor. The rôle of folic acid in B_{12} deficiency diseases also remains obscure and presumably in this type of patient would fail to give a satisfactory response. However, there are reports of oral folic acid and vitamin B_{12} producing a response in true pernicious anæmia. This latter response is not consistent and is not a principle that should be used in the routine care of pernicious anæmia patients.

This case is believed to be an instance of pernicious anæmia due to deficiency in protein causing deprivation of the extrinsic factor. It may be more common than generally recognized. Such cases can be cured by supplying protein in adequate quantity and quality due to the significant content of B_{12} in these protein sources.

It is of importance, we believe, to recognize that at present the daily requirements of B_{12} are unknown. The length of time for the development of such an anæmia is probably influenced by the small amount to total absence of biological protein in the diet. The distribution of vitamin B_{12} in natural materials[16, 17] is confined mainly to a trace in cow's milk, more appreciable amounts in whole milk powder (Klim), cheese, egg yolk and relatively large quantities in meat, such as beef, pork, etc. The restrictions of these foods not only may affect growth[18] in the youth of a country, but may well give rise to an increased incidence of "pernicious anæmia" as it did in Germany in 1923. It is also important to recognize the true nature of the deficiency and supply oral preparations of B_{12} or better, those foods which contain natural occurring B_{12} concentrations.

SUMMARY

The outstanding features in this case are:

1. The history of protein poor diet.
2. A clinical picture resembling pernicious anæmia, with slight increased bile pigment, smooth tongue, but no skin changes or positive neurological findings.
3. The hæmogram showed a marked hyperchromic macrocytic anæmia, leucopenia and a relative lymphocytosis.
4. The presence of free hydrochloric acid in the stomach in normal quantities.
5. A decrease in blood proteins and dependent œdema of a mild degree.
6. Remission of the anæmia after vitamin B_{12} therapy orally.
7. The marked reticulocyte response and return to normal of the blood count in a relatively short period of time, associated with a sense of well-being and normal appetite.

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SPECIAL ARTICLE

INTERN TRAINING FOR GENERAL PRACTICE*

T. J. QUINTIN, M.D., *Sherbrooke, Que.*

SINCE JULY, 1950 the Sherbrooke Hospital has been one of a group, now numbering five hospitals, which has shared the intern training scheme sponsored by the Royal Victoria Hospital, Montreal. Two interns have rotated through the hospital services every two months.

This is an attempt to review the possibilities, and shall we say, some of the *hopes*, we have for the scheme, from the point-of-view of the men in the periphery of medicine, away from an academic centre.

The Sherbrooke Hospital is a 140 bed hospital, situated in a community which has an English-speaking population of about 9,000. The patients treated in the hospital are from the surrounding rural communities—small farming villages or industrial towns, as well as from the City of Sherbrooke. The English-speaking practitioners in these various areas are the men who staff the hospital, and are the practitioners the interns at our hospital are encouraged to visit while on this rotation. About one-third of the practitioners, listed as members of the hospital staff, practise in small centres.

INTERN PROGRAM

Program in hospital.—This has been developed and modified from time to time, on specific suggestions made by the interns themselves, and the outlines here supplied of intern duties will give some idea of what has resulted, as far as the organizing of a program is concerned.

Two members of the attending or associate staff, appointed by the medical staff, will act as "Præceptors". In matters pertaining to the professional care of the patient, the house physician is responsible to the præceptors; in all other matters, to the administrator.

After arriving at the hospital, the house physician is to report to the præceptors as soon as possible.

Admission: routine procedure.—When a patient is admitted, the house physician is to be advised by the nurse on the floor and he, in turn, will advise the attending physician.

The history and physical examination are to be completed within 48 hours of admission. Surgical cases are not accepted in the operating room until history, physical examination and urinalysis are recorded. Except in the case of female pelvic examinations, the house physician is to examine each patient assigned him, unless the attending physician specifically states no examination is to be made. In the case of female patients, a nurse must be in attendance during the examination.

Provisional diagnoses and/or a differential diagnosis must be made by the house physician, except, of course, in those cases where he is not permitted to make an examination.

Orders.—House physicians are encouraged to make their recommendations regarding investigation and treatment and to note them on the chart; but orders must be approved by the attending physician, particularly with regard to x-rays, whether for in-door or ambulatory patients.

Orders for analgesics or sedatives for in-patients are left to the discretion of the house physician. All orders must be written in the order book for in-patients and drawn to the attention of the nurse-in-charge at the time of writing.

The house physician will be responsible for the administration of blood and of solutions, either intravenously or interstitially, as the case may be, to the patients assigned him.

Clinical laboratories. – The house physicians are expected to do *emergency* blood work and urine examinations. If they wish to perform more complicated procedures at other times, they may do so with the permission of the præceptor and the head of the department.

From 5.00 p.m. to 7.00 a.m. each day during the week and from 1.00 p.m. on Saturday to 7.00 a.m. on Monday over the weekends, the house physician on call will be responsible for the handling of blood and plasma. He will also be expected to group and cross-match specimens during these hours; but may request the assistance of the technician on call should he so desire.

When requested, it is expected that the house physicians will assist in the interpretation of x-ray plates taken of patients assigned them.

Tutoring in the administration of cyclopropane, nitrous oxide and spinal anæsthesia may be arranged for if so desired.

Operations and deliveries.—The house physicians will be routinely notified of the operations performed on and delivery of, patients assigned them; but they need not assist should other work in the "House" be engaging their attention. They are, however, expected to attend to any emergency case when the attending surgeon or obstetrician is absent. No house physician is permitted to perform an operation without a member of the staff in attendance, unless it is with the written permission of the attending surgeon. The præceptor is to be notified of all such cases.

Autopsies.—Unless advised to the contrary by the attending physician, the house physicians are expected to make every effort to secure permission for autopsy on any patient who dies in the hospital. In this way only, can an autopsy rate be maintained at the minimal percentage

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demanded by the Canadian Medical Association and the American College of Surgeons. *When the consent for autopsy is obtained, the laboratory technician is to be advised immediately.* If the technician is not in the hospital, the pathologist is to be notified direct.

The house physicians must assist at any autopsies which may be performed on patients assigned them. When the numbers 890 are flashed on the signalling system, it means an autopsy is in progress.

Attendance at clinics.—The house physician on admission assignment "A" will be expected to attend the fortnightly mental health clinic held in the hospital; the house physician on admission assignment "B" taking his calls during attendance. Should they so desire, the house physicians will be permitted to attend, singly and in turn, the weekly medical clinics held at St. Vincent de Paul Hospital. The house physicians will be expected to attend at least one of the cancer clinics held at St. Vincent de Paul.

The general ward rounds will be conducted every Wednesday at 12.00 noon except during July and August, and attendance is obligatory.

A clinical pathological conference is held each month, replacing one of the general ward rounds on Wednesday at 12.00 noon, except during July and August. Attendance at these is also obligatory.

The house physicians are encouraged to select the cases for discussion at ward rounds, and to present the history, physical findings, and other pertinent details at the meeting.

Practices in surrounding communities. — In order to give the house physician some experience in general and group practice in the country, arrangements have been made for him to spend a portion of a day each fortnight, with one of a list of practitioners in the neighboring communities.

Time off.—Time off will be given on alternate nights and weekends, providing the House is adequately covered. The house physicians will sign in and out at the information desk. Permission for time off other than noted must be secured from the administrator.

DEVELOPMENT OF PROGRAM

The program outlined above has developed in the following manner:

Rounds. — An endeavour is made to have regular rounds at 8 a.m. three times per week on medical cases—usually with two interns and one staff man. Here are some interesting reactions, obtained from one intern, to case history writing and rounds. This is from a recent report:

> "As interns we would feel that the staff doctor was really interested if he were to sign each case just after it has been written and include a short criticism on interesting cases. This would at least tell us whether our opinions were wanted."

Many staff men, it is felt, look upon an intern as a clinical clerk and never try to develop the old idea of apprenticeship in medicine. This applies in larger centres as well as at the periphery.

Surgical and obstetrical experience is given only in so far as possible—since nearly all the cases that come to hospitals such as the Sherbrooke Hospital are private patients, and, hence, there is some difficulty in giving practical experience in the fields of obstetrics, gynæcology and surgery.

The men are encouraged to follow any special interest they may have. If any intern is interested in a problem requiring laboratory investigation, he is encouraged to follow this and no charge is made to the patient for procedures that are of purely academic interest.

Conferences are held weekly and are preceded by a buffet lunch, which we have found the best way to get the staff men together. We never seemed to be able to find a time during the morning to suit everybody. The men who come from the surrounding communities seem to enjoy these meals as they give them a chance to meet more easily their fellow practitioners. Perhaps it's the "loaves and fishes" but we hope this is not entirely so.

Cases are presented by the interns and discussed by the staff men. One intern says in his report "the cases should be followed by more discussion", and suggests that the chairmanship should rotate weekly among the attending men. "This would arouse interest", he says.

Papers are sometimes presented on special topics by staff members. Men are encouraged to bring in any case they may feel is of particular interest and reports are often made on interesting developments in therapy that have been tried and found valuable.

Again, if a practitioner from some surrounding community has admitted a patient to a particular staff man, the staff man sees to it that the "man from the sticks" presents the case. This shows the interns, usually, that what puzzles the man in the periphery is also a problem at the centre. Many times also it is shown how a careful history and physical examination by a man in the village has yielded as much or more than elaborate investigation in hospital. This we feel gives the interns something to offset the attitude they too often see in university hospitals; an attitude of superciliousness in referring to "the family doctor who first saw the case".

Pathological conferences are held once a month. These are particularly valuable as we are fortunate in having a projector for slides and a pathologist who delights to teach. Movies of medical interest are sometimes presented as part of the weekly conference.

Autopsies.—As can be seen from the instructions, the interns assist and sometimes have the opportunity to perform autopsies. The interns are given instruction in approaching relatives to obtain post mortem examinations and the num-

ber obtained has steadily increased in the past two years.

Visits to other hospitals.—We are fortunate in having two excellent French-speaking hospitals. Many of the men avail themselves of the opportunity of the clinics at these hospitals. This is a stimulating experience for many of our interns, and has developed an appreciation of the good work being done in the French-speaking schools of medicine. Many of our French-speaking confrères have co-operated in the training scheme and have called our interns to show them things of interest, when they crop up in their practices.

APPRENTICESHIP OF INTERNS

To develop this idea means living and working with a man—in the old sense of the term. We try to do this to some extent.

All young medicos wonder what living the life of a busy doctor implies. They get the opportunity to see this in Sherbrooke as they are entertained in the homes of the medical staff. They have ample opportunity to share in the interrupted meals, and the disrupted programs of the medical household. We hope they are not discouraged. We get to know them and they us, in this way.

They also have an opportunity of seeing various ways of managing a practitioner's office. They are anxious to see case history and record methods, and last but not least "how the books are kept".

They visit men in the smaller villages. They see individualism in medicine and how a patient is handled in a country office, as compared with the hospital. They get to know something of the districts from which the hospital draws its patients and when "Sam MacLeod" turns up in the hospital from a district the intern has visited, the budding medico has some interest in him as an individual and not merely a "heart" and a "lung". This helps "Sam MacLeod" and it also helps the intern in developing the art of medicine. An endeavour is made in the bedside teaching to bring out some of the things of "human interest" in the cases presented by the intern.

Many of the young men nowadays are interested in the development of group practices. An opportunity to see this side of medicine is afforded by a group in a nearby industrial town.

The reaction of the practitioners is very gratifying. They are all anxious to see and help the interns get what they want out of the time spent in this area. Stimulation is derived from the interns' visits and the reaction of the interns themselves is always very enthusiastic.

A TYPICAL DAY

We asked one houseman his impressions of a typical day. This is what he found his day to consist of in a hospital such as ours:

Lying in bed, awaiting the cheerful early morning ring of the alarm clock is almost a ritual to many of us, in this business, however, it's the telephone that invariably arouses one in the early morning hours.

"Doctor! would you please come to the case room right away."

Dressing hurriedly, you scramble upstairs—maybe you'll deliver a mother before breakfast. Often you do or else you administer the anæsthetic while her own doctor does the job. Sometimes you do both simultaneously when the staff doctor is a little tardy.

But you mustn't waste time here—rounds at eight or just after you have had a bite to eat. The cases range from stasis dermatitis, infectious hepatitis to Ca of the sigmoid. On numerous occasions before you can finish rounds you are called to the O.R.—maybe it's a hippinning or maybe it's a herniorrhaphy, appendectomy or hæmorrhoidectomy. Often the staff man says with regard to the latter operations—"Here!" handing you the scalpel "Go ahead".

During this time, in the back of your mind is the ward—how many patients have been admitted and so forth? So out to the nursing stations you scamper—"Doctor! there are six new admissions" (and you haven't yet today seen the old ones) "One is in heart failure; another an accident case and is bleeding; another is unconscious—possible fractured skull". Question is, what to do first!

After clearing these affairs away perhaps you'll have time to start the daily transfusions, i.v.'s, change dressings and write orders. Before lunch you may have time to work in a few histories and physicals.

In the afternoon you make rounds alone and sometimes with the staff men and friendly arguments may ensue—merely for the purpose of teaching however. But again, some one wants a tooth looked at; perhaps you'll pull it; there's a cast waiting to be applied in the outdoor; a hockey player with a dislocated shoulder; a gentleman has an acute asthmatic attack on the second floor. You do a few more case histories. By then the supper bell is ringing and it's time to relax for at least an hour before you start evening rounds, check on orders for the day and for the next a.m., do catheterizations and give sedatives. However, the lull is not for long because Mr. So-and-So has just died on third floor—the p.m. is granted—the pathologist is out of town. So down you go to the p.m. room, for your first autopsy. Of course by this time perhaps a bleeding peptic ulcer has been admitted who needs a complete blood count and is to be grouped and cross-matched for a transfusion. There's no lab technician at night, so . . . !

But before you can roll sluggishly into bed and wind your cheery little alarm clock, the case room happily calls—"Doctor! the head is on the perineum!"

WHAT HAS THIS SCHEME PRODUCED SO FAR?

It has raised the level of medical practice in the area, and stimulated medical thinking. With few exceptions, it has changed the attitude, we feel on the part of the interns towards some of the more intangible things in the practice of medicine.

It has given them so they say, a feeling of confidence. They have escaped from the dominance of their teachers to where they are asked for an opinion and are made to feel that they can practise the healing art. This applies even in the field of psychiatry—It may be a "kitchen brand of psychiatry", but the men are encouraged to use it to help their patients solve some of their problems.

Of the eighteen men who have rotated through Sherbrooke, two and possibly three, are returning to this area and one will be going into practice in another part of rural Quebec. This is probably the direct result of the scheme.

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WHAT OF THE FUTURE?

What we should like to see in the future is recognition and sponsoring of these and similar schemes by Government and University authorities. This should lead to, we hope: (a) Funds being made available to have regular visits made by members of the medical faculty or hospital staffs at the centre, to hospitals in the periphery. This helps the interns, they are stimulated by interest shown in them at the centre as well as at the periphery. (b) The provision of fellowships to senior men or residents who are anxious to study and improve the teaching of the interns, in the peripheral hospital, and, at the same time, raise the standard of medical care outside the larger centres. These fellowships could be a definite project sponsored by the Section on General Practice of the Canadian Medical Association. Such a "Fellow in General Practice" could make detailed studies and recommendations for further development of these schemes. (c) The encouragement of men to develop special skills or hobbies (not "specialists" in general practice) which will contribute to the general uplift of standards and improve the level of medical care. To do this we feel that many of these interns should have bursaries made available to them to follow certain fields so they may contribute special knowledge and instruction to others, in the areas where they decide to work.

OPINIONS OF THE SCHEME

We have collected the opinions of some of the practitioners, for besides getting the reactions of the interns it was felt that there would be interest in the reaction of the men who work in the hospital, to the scheme which we have endeavoured to describe.

We have here suggestions as to the type of training that men in active practice in the country think should be recommended for the training of an intern for general practice.

The first is from a man who practices in a town. He suggests:

Rotation 1st year		*Rotation 2nd year*	
Medicine	2 mos.	Medicine	2 mos.
Surgery	2 mos.	Pædiatrics	2 mos.
Obst. Gyn.	4 mos.	Surg. & EENT	4 mos.
Country	2 mos.	Country	4 mos.
Anæsthesia	2 mos.	Resident	

He says:

"The above are basic requirements for a good general practitioner. Every doctor should ideally possess certain attributes but these cannot be inculcated by a special course in general practice. All we should attempt to do is to fit a man to recognize and deal with the majority of his problems, but do not discourage him from developing, by refresher courses or postgraduate work, his skills and bents as he realizes them, after his two years of intern training.

"If he wants to be the best cardiologist or chest man in the Eastern Townships the more power to him. He will help many others with his special knowledge."

Another practitioner, this time from a village practice, also suggests that two years' training is enough, and he goes on to say in his recommendations:

"At least one year of rotating internship away from a university centre, preferably where there are no senior interns or residents but where informal instruction (and a minimum of formal instruction) could be given by general practitioners.

"A minimum of training in large centres, devoid of responsibility on the part of the intern and where his time is occupied in laboratory work and discussions, profitable mainly to specialists. Actual practice, and not reading or hearing, makes practitioners.

"Active participation and a fair degree of responsibility in the diagnosis and treatment of staff patients, in the hospital. Responsibility for the *continuous* treatment of patients in hospital is particularly valuable so that the results of *his* therapy may be observed and the problem of treating patients unresponsive to usual straight-forward treatment may be tackled. Unselfish donation of obstetrical and minor surgical experience by the practitioners, in the hospital, is desirable.

"A month or more of assisting a general practitioner preferably in a rural district unblemished by the easy availability of laboratory conveniences and specialists. A moderate salary could be paid for this, say $100 per month. During this period he should be required to make selected house calls, participate in office visits, home deliveries, and dispensing and be given instruction in medical bookkeeping, practical recording of case histories and the various business aspects of the profession. This type of training is in my opinion invaluable and essential, the degree of value varying with the responsibility given the intern and the willingness of the practitioner to engage in discussion of daily medical problems."

There are many imperfections in this intern training scheme, I have outlined, but it has great possibilities. It is in the experimental stage.

We feel that this section of General Practice of the Canadian Medical Association rather than seeking that indefinite something, called "The Certification of the General Practitioner", might well justify its existence if it were to concentrate on developing schemes to strengthen the spokes which connect the hub to the periphery of the medical wheel. We feel that, to carry the metaphor further, this *is* the wheel of real medical progress, which will carry us towards the benefiting of the one individual in whom we are all vitally interested, the patient.

CLINICAL AND LABORATORY NOTES

THE CONTROL OF UNPLEASANT ODOURS IN HOSPITAL WARDS

L. J. LE VANN, M.D.,* *Hopkinsville, Ky.*

ONE OF THE MAJOR administrative problems of an institution for mental defectives, as well as of a mental hospital, is the adequate recruitment and retention of personnel. Even when employed there is a significant percentage who "drop out". We have found that this often occurs when the

*Formerly Medical Superintendent, Provincial Training School, Red Deer, Alberta, now Clinical Director, Western State Hospital, Hopkinsville, Kentucky.

neophyte nurses and attendants are transferred from the "higher-grade" wards, where they receive their initial training, to wards where the patient is in need of more complete nursing care and attention, *viz.*, "parading to lavatories", cleaning incontinent patients when they soil themselves, feeding and bathing of these patients; in short, the numerous duties associated with the care and attention of idiots, low-grade imbeciles, and the feeble-minded with psychosis who often regress to a level clinically indistinguishable from that reached by the regressed schizophrenic.

These candidates had been carefully screened and considerable selectivity had been exercised prior to granting them employment. It was my experience to interview them after they had handed in their resignations in order to determine what occurrence or series of events were mainly responsible for their desire to seek other employment.

It is not unimportant to record here that a significant number of these people were regarded as potentially excellent material as ward personnel and their ward efficiency ratings placed them in the 80 to 85% efficiency group (65% is regarded as average passing efficiency). Yet when these people were rotated to other wards (*viz.*, the low-grade wards) there was a marked increase of psychosomatic complaints, *e.g.*, lack of appetite, headache, nausea, as well as lateness and often absenteeism. When these nurses and attendants were interviewed by me as Medical Superintendent, the reasons given by them for their resignations were surprisingly limited and there was the paraphrasing of the following themes, "I can't stand the smell", "I start feeling sick as soon as I open the door", and "The smell from the low-grade patients is so bad I can't eat without feeling sick".

I have been intimately associated with mental hospitals and institutions for mental defectives during the past eight years, and found this unpleasant problem invariably associated with chronic or low-grade patients of both these types of hospitals, and until recently this situation was accepted, by me, as the state of events which had to be borne as the normal problem which one expected during the care and supervision of these regressed and dependent patients. However, it was still felt that to do nothing was too intimately related to nihilistic apathy. Our first procedure was to consolidate our low-grade population; an infirmary villa was established for bed-ridden patients and all ambulant low-grades were segregated in another ward. This had an immediate effect on concentrating the unpleasant aroma in two wards, but still it was localized.

The major problems still remained—(a) the adequate staffing of the lower grade wards, and (b) the reduction of the odour in the wards.

Previous experience with several types of ozone-producing apparatus, wick-evaporation type of deodorants and pressure sprays had proved unsatisfactory and in any case these measures did not attack the problem at its source.

Local application of a water soluble chlorophyll derivative has acquired some reputation as a wound healing accelerator and deodorant of chronic infected wounds[1 to 4] and more recently, reports that the per oral administration of a chlorophyll derivative was useful in reducing body odours[5, 6] led to the suggestion that such a preparation might prove helpful in "deodorizing" low-grade patients.

The preparation selected for trial was "Sudroma".* The ward attendants were kept in ignorance of the nature of the preparation and what was expected from it. We decided to treat the patients in one of the two wings of the ward and orders were issued to give each patient in this wing one tablet twice a day at twelve hourly intervals. This was done for three days. During the second day of the treatment, the attendant in charge reported a marked reduction in the odour in the "treated wing" as compared with that of the "control wing", so we then gave orders that all the patients in both wings were to receive the tablets.

During this period all deodorizing and resinous antiseptics were removed from the wards. Twenty-four hours following the commencement of the administration of the tablets to all patients in the ward, the reduction in odour was striking and even though the attendants and ward personnel had still not been informed why these tablets were given, nearly all were certain by this time that the tablets were directly responsible for the improvement. The author was able to observe that body odour was markedly reduced during the administration of "Sudroma" tablets. In 125 patients who received medication, not one showed any side effects either of a digestive or an allergic nature.

Meticulous attention to hygiene and responsibility for maintaining such measures is in no way lessened by the observation that such residual odours as may remain may be strikingly reduced by the per oral administration of a chlorophyll derivative.

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*Sudroma is a tablet which contains 100 mgm. of a chlorophyll derivative, prepared by the Westcott process. It is marketed by Charles E. Frosst & Co. to whom we are indebted for generous supplies of the preparation used in this study.

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EDITORIAL

ANTIBIOTIC FASTNESS

ONE OF THE GREAT deterrents to effective use of the antibiotics is the development of resistant strains of bacteria and drug fastness. This may develop rapidly—with streptomycin it may develop within a few days and result in a pronounced decrease of sensitivity to the drug—or it may be a gradual and slow process. Once fastness to a drug has been acquired, even greatly increased doses will fail to control the infection. Furthermore, fastness may remain a permanent characteristic.

Drug fastness is probably the resultant of two factors. In any given infection the bacterial flora include resistant as well as susceptible organisms. Thus exposure to an antibiotic will tend to eliminate the susceptible while at the same time permitting the resistant organisms to flourish. Then again, it is quite possible that the naturally susceptible strains may become adapted to the antibiotic, thus acquiring resistance to its action. In fact it is known that certain bacterial strains have been rendered antibiotic-dependent, requiring the presence of specific antibiotics for optimal growth.

Much work has been done in the last few years on the antibiotic resistant, chiefly penicillin resistant strains of staphylococci. These reports clearly show that the coagulase-positive staphylococci causing infections have shown increasing resistance to penicillin. Valuable contributions have come from Winnipeg on staphylococcal cross-infection studies in hospitals and similar institutions (McGuinness, Colbeck). In the present issue of the Journal Dr. G. B. Leyton has brought these studies up-to-date taking in all of 1951, and extended them to include resistance to aureomycin, chloromycetin, streptomycin, penicillin and terramycin.

From 1949 there has been a general trend towards an increase in the number of resistant strains of staphylococci. There is strong suggestion that the rate of this increase in resistant strains may be related to the general use made of the specific antibiotics. The appearance of antibiotic resistant strains in all the phage types examined may cast some doubt on the value of phage typing or antibiotic sensitivity tests for tracing cross-infection.

It is from work of this kind that we learn more about the phenomenon of drug resistance. It is clearly necessary that eventually this problem will have to be solved if we are to continue to improve methods for controlling infection.

A.H.N.

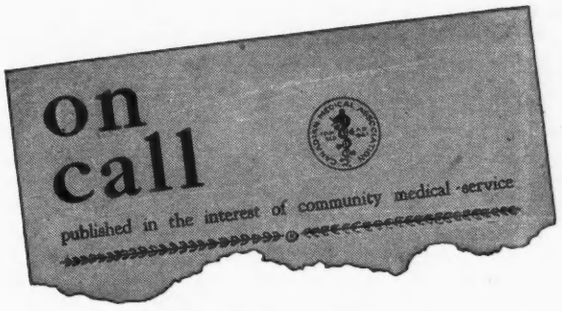
Editorial Comments

HORMONES AND NEOPLASTIC GROWTH

A great many clinical and experimental observations on the effects of ACTH and cortisone on neoplastic growth have been reported in recent months. Certain conclusions seem tentatively justified. Neither ACTH nor cortisone seems to exert any certain influence upon carcinoma or sarcoma *per se*. They do not seem to evoke beneficial responses in myelogenous and monocytic leukæmias. In the lymphatic series results are not predictable; some patients seem to derive real though temporary benefit, others may merely become afebrile and subjectively more comfortable. In multiple myeloma dramatic improvements as well as negligible or no effects have been reported.

From the observations reported it may be justifiable to conclude that these hormones have a greater effect upon tumour environment than on the tumours themselves. They do appear to inhibit normal growth and there is some evidence that tumour growth may at times be inhibited. However, the irregularity of response suggests that further work is needed.

Some neoplastic growths are definitely retarded by administration or deprivation of sex hormones. It is becoming increasingly evident that endocrine therapy singularly affects only certain groups of tumours. This implies a unique specificity which is related to the intrinsic characteristic of the particular cells influenced rather than an effect on neoplastic growth in general (Aub and Nathanson). A.H.N.



MEDIATION COMMITTEE

A car skidded out of control and impacted against a large tree stump on the shoulder of the road. The front end telescoped into the body. The driver, alone in the car, was crushed. Within an hour his unconscious body was speeded by ambulance to one of the larger hospitals on the outskirts of the city. One of the staff doctors attended him. A specialist, he set the bones broken in the right leg and right arm. Two fractured ribs were taped.

Three weeks later, well on his way to recovery, the man was taken to his home to convalesce. Because of the seriousness of his injuries and possible late complications, the same doctor visited him once a week for a month.

Soon after, he sent the patient a bill for his fee. It amounted to $250. A week earlier the man, a well-to-do manufacturer's agent, had paid a sizeable bill sent from the hospital.

He took one look at the doctor's bill when it came and erupted into considerable abuse about "crooked" doctors to his wife. "I got a hospital bill of $300", he said, "then this doctor sent me a bill for almost as much just for a few visits when I'm home and practically better. 'For professional services' it says. At four visits that's more than $60 a visit."

The manufacturer's agent brooded about the doctor's bill for two days and told a number of friends and business associates about it. One of his friends suggested: "Why don't you complain to the proper authorities?" Several telephone calls later, the agent finally found out who the proper authorities were. He then wrote a long letter to the provincial medical association, setting out in detail his complaint against the doctor's bill. He wrote that he was quite satisfied with the bill received from the hospital.*

The complaining letter was acted upon immediately by the executive of the Medical Association. It was reported to the president of the branch society of the area in which the hospital is located. A practising doctor, he soon got in touch with the four other members of his mediation committee. According to the by-laws of the committee, all four were past presidents of the local society.

After considering the complaining letter a member of the committee telephoned the doctor concerned, told him what had happened and asked him to appear before them when he had an opportunity to review his part in the case. The committee also communicated with the patient, told him they were acting on his letter and asked him if he would appear before them at a later date. After examining the complaining letter, the surgeon appeared a week later to explain to the committee his reasons for charging as he did.

It appeared to the committee that a misunderstanding with the patient had prompted the complaint. It was concluded that the patient was unaware that the doctor had charged for setting his fractures and looking after him in the hospital as well as during convalescence. Members of the committee considered the doctor's fee to be reasonable. The doctor was told, however, that if he had itemized his bill there would likely have been no complaint from the patient.

Mediation Committee

The patient was then contacted by the committee and told of the talk with the doctor. It was explained he might also appear before the committee in possible rebuttal. However, a few days later the patient phoned the committee chairman and apologized for his complaint and added that he thought the committee was rendering a real public service.

Thus ended one typical case which emphasizes a number of things in connection with mediation committees:

The doctor did not itemize his bill; perhaps the next time he will. Because it was not itemized the patient misunderstood and became, quite justifiably, angry. He sought satisfaction and because an acquaintance had heard about mediation committees (their presence is still very much a secret) he got in touch with the proper authorities. These authorities acted quickly and fairly. Their action helped the doctor justify his bill. And most important of all, they made one more layman aware that doctors are not all aloof or arbitrary as he had at first believed.

*This is an actual case, with some details altered, so that the persons involved will not suffer embarrassment.

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In other words, the mediation committees, many of them in action less than a year in Canada, are proving that they are doing a splendid job of public relations for the medical profession.

But while the mediation committee *per se* is proving itself, the reluctance on the part of the sponsoring associations to let the public know of the committees' existence is still nullifying much of its value.

The mediation committee is a protective force—it protects the medical profession and the public from unethical doctors—and corrects misunderstandings which are so damaging to our good name. The main fear of publicity is that the cranks will descend in small armies and waste the time of the doctors sitting on the committees. But in the United States where mediation committees (they're mostly called grievance committees down there) have been in action for two or more years, it has been shown that half of the mediation committees publicize their existence and half do not. Of the half publicizing, larger numbers of persons have made use of their services but in this increase the number of so-called "cranks" was too low to register even a significant percentage. This in the United States, where the average citizen is more prone to make use of public services than in his Canadian counterpart.

Perhaps the method of publicizing the existence of the committee is responsible for favourable public reaction. This is how the Massachusetts Medical Society did it:

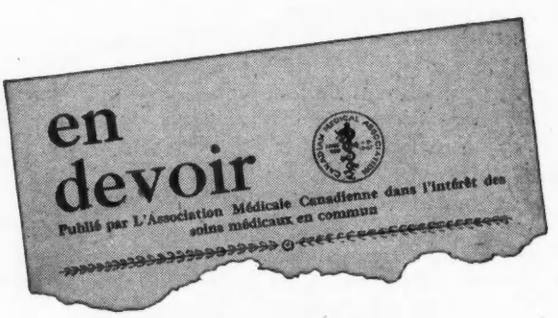
". . . Although this Committee has existed for some three-quarters of a century, the public has never been properly informed of the extent of our self-regulation. . . . Publication of our Committee's existence is made in a sincere effort to improve our relations as a profession with the public—this action is not an apologetic approach. It is intended to correct and eliminate any existing abuses and to furnish a means of ending much malicious rumour and gossip that have brought untold harm to our standing in the community—it is expected that this effort will abort considerable malpractice litigation and will furnish protection against cranks—the ethical physician has nothing to fear—the relatively few of our profession who abuse privilege should soon fall into line—although no disciplinary action can be imposed by the Society on physicians who are not members, the publishing of the members of such physicians involved in complaints should serve to point up the ethical and professional standards required of our members. . . ."

What type of complaints are made before the mediation committees? It is too early in the Canadian history of the committees to show a significant breakdown in this regard but in the Wayne County Medical Society in Michigan 45 complaints regarding fees were received during the year. This is how they are divided into groups:

Type:	
Home calls	5
Office visits	9
Operations	8
Obstetrical cases	12
Consultation	5
Hospital care	8
Cause:	
Unsatisfactory services	10
Services not rendered by doctor	17
Fee too high	9
Method of payment	9
How settled:	
Referred to physician for explanation	2
Adjustment made on the bill by physician	7
Bill cancelled by physician	6
Committee found no cause for complaint	26
Referred to ethics committee	2
In court	1
Pending	1

In Ontario, mediation committees were officially sponsored by the Ontario Division at the annual meeting in May, 1951. They have been operating under various branch societies ever since. Recently, there has been a growing demand on the part of many committee members to test the value of announcing their existence to the public. This is mainly because they realize even with the few grievances they have handled, that misunderstandings are the chief cause for complaint. They feel if other misunderstandings exist and are not reported they are harming the reputation of the doctor concerned as well as that of the whole profession.

In brief, the Ontario by-laws governing the establishment of mediation committees work this way: A committee of doctors meets when necessary to consider a complaint. Both doctor and patient are invited to be heard. The committee then suggests a solution to the complaint. In most cases this solution is accepted. If it is not, a central committee of the OMA may be convened to consider the problem. But this committee has no disciplinary powers. However, if legal discipline is necessary a third body—a joint committee of the OMA and the Ontario College of Physicians and Surgeons—may be appealed to.



COMITE DE MEDIATION

Un automobiliste perdit tout à coup le contrôle de sa voiture et s'arrêta soudainement sur un énorme tronçon d'arbre planté sur le bord de la route. Le devant de l'automobile s'écrasa comme un accordéon et le chauffeur seul dans l'auto fut écrasé. En moins d'une heure, l'ambulance était rendue sur les lieux et transporta le blessé inconscient dans l'un des grands hôpitaux de la ville. L'un des médecins résidents prit soin de lui et comme il était spécialiste, il traita les

fractures du bras et de la jambe au côté droit. De plus, il prit soin de deux côtes fracturées.

Trois semaines plus tard, le patient était presque guéri et s'en alla chez lui terminer sa convalescence. Par suite de la gravité de ses blessures et des complications qui auraient pu survenir, le même médecin continua de visiter son patient une fois par semaine pendant un mois.

Quelque temps plus tard, le médecin envoya le compte de ses honoraires dont le montant indiquait $250. Une semaine auparavant le même patient, un agent-manufacturier prospère, avait déjà payé un compte assez considérable envoyé par l'hôpital.

Il regarda sèchement le compte du médecin et commença alors à dire à son épouse tout ce qu'il pensait de l'abus des médecins malhonnêtes. "J'ai reçu un compte d'hôpital de $300" dit-il "et voilà que ce médecin m'envoie un compte presque du même montant pour quelques visites seulement qu'il a faites ici, lorsque j'étais pratiquement guéri. 'Pour service professionnel' comme l'indique la facture, alors c'est plus que $60. par visit!"

Pendant deux jours, le pauvre homme songea amèrement au compte du médecin et raconta sa déception à plusiers de ses amis et collègues. L'un d'eux suggéra: "Pourquoi n'écris-tu pas à l'autorité médicale?" Alors, après s'être informé à plusieurs endroits, l'homme d'affaires réussit à trouver l'adresse de l'autorité compétente. Il écrivit donc une longue lettre à l'association médicale provinciale, en donnant la raison de son grief contre le compte du médecin. Il ajouta qu'il était satisfait cependant du compte d'hôpital.*

La direction de l'association médicale s'occupa immédiatement de cette lettre dès sa réception. Elle fut transmise au président de la société filiale dans la région où l'hôpital est situé. Ce médecin communiqua alors aussitôt avec quatre autres confrères, membres de son comité de médiation. Selon un règlement de ce comité, tous les quatre médecins avaient été auparavant présidents de l'association locale.

Après considération de la lettre du plaignant, un membre du comité téléphona au médecin qui était l'objet du grief et lui raconta les faits en l'invitant à se présenter devant le comité pour expliquer son opinion concernant cette plainte. Le comité communiqua aussi avec le patient pour lui dire que sa lettre recevait beaucoup de considération, et l'invita à rencontrer le comité quelque temps plus tard.

Le chirurgien se présenta au bout d'une semaine, et après avoir lu la lettre du plaignant, expliqua la raison de ses honoraires.

Le comité réalisa qu'un malentendu chez le patient avait causé sa plainte. Le patient ignorait que les frais du médecin comprenait le traitement des fractures et les soins relatifs pendant son séjour à l'hôpital et durant sa convalescence. Les membres du comité jugèrent donc ce compte comme étant raisonnable.

L'on expliqua cependant au chirurgien qu'il aurait dû détailler son compte, ce qui aurait sans doute éviter un malentendu.

Le comité communiqua donc avec le patient et lui raconta l'entrevue avec le chirurgien et invita le patient à se présenter à son tour s'il n'acceptait pas ces explications. Cependant, quelques jours plus tard, l'agent-manufacturier téléphona au président du comité et s'excusa d'avoir envoyer cette plainte en ajoutant que le comité rendait ainsi un très grand service au public.

Voilà un cas typique qui met en valeur le bien accompli par les comités de médiation:

Le médecin n'avait pas détaillé son compte, mais il le fera sans doute la prochaine fois. C'est pour cette raison que le patient n'avait pas compris et avait cru à cette injustice. Il désirait satisfaction et c'est grâce au conseil d'un ami qu'il put connaître l'existence des comités de médiation (leur existence est encore très méconnue) et qu'il écrivit aux autorités officielles. Le cas fut considéré immédiatement, ce qui permit au médecin de justifier ses honoraires. Le plus important résultat est le fait que ce comité a fait comprendre à un profane de plus, que les médecins ne sont pas désintéressés et arbitraires comme il l'avait cru d'abord.

En d'autres mots, les comités de médiation dont plusieurs ont moins d'un an d'existence au Canada, donnent la preuve qu'ils accomplissent un travail splendide de relations publiques envers la profession médicale.

Cependant, malgré que le comité de médiation acquière beaucoup de valeur, le peu d'empressement de la part des associations dirigeantes pour faire connaître parmi le public l'existence de ces comités, diminue beaucoup la valeur de ces derniers.

Le comité de médiation est la force protectrice, qui protège et la profession médicale et le public contre les médecins non-consciencieux, et qui peut corriger tous les malentendus qui nuisent à notre bonne réputation. L'argument principal contre le fait d'annoncer ce comité, est la crainte de voir une armée de mécontents qui feraient perdre le temps précieux des médecins qui siègent au comité de médiation. Mais aux Etats-Unis où les comité de médiation (on les appelle plutôt comités de griefs dans ce pays) sont établis depuis deux ans et plus, l'on remarque que la moitié de ces comités annonce son existence tandis que l'autre moitié ne fait aucune publicité. Evidemment, au sujet des comités qui font de la publicité, l'on constate qu'un plus grand nombre de personnes emploient leur service, mais en dépit de cette augmentation, les soi-disant mécontents sont trop peu nombreux

*Il s'agit d'un cas réel dont quelques détails ont été changés pour éviter de gêner les personnes dont il s'agit.

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pour indiquer le moindre pourcentage. Cette situation existe aux Etats-Unis où les gens en général sont plus portés à faire usage des services publiques qu'au Canada.

Sans doute, le fait d'annoncer l'existence du comité est responsable des réactions favorables venant du public. Voici ce que la Société Médicale de Massachusetts dit à ce sujet:

". . . Bien que ce comité ait existé depuis plus de trois-quarts de siècle, le public n'a jamais appris complètement l'étendue de notre pouvoir. . . . La publicité concernant l'existence de notre comité est réalisée par un effort sincère pour améliorer nos relations comme profession, avec le public—et cette action n'est pas prise en manière d'excuse. Notre but est de corriger et d'éliminer tout abus qui peut exister et de donner un moyen d'éviter les rumeurs malicieuses et les calomnies qui ont causé beaucoup de dommages à notre réputation dans la société. Nous croyons que cette façon d'agir et cet effort éviteront beaucoup de procès contre les médecins et donneront une protection contre les mécontents. Les médecins consciencieux n'ont rien à craindre et le petit nombre de ceux qui abusent de leurs privilèges reviendront en ligne avec les autres. Bien qu'il soit impossible à la Société d'imposer des mesures disciplinaires aux médecins qui ne sont pas membres, le fait de publier les noms de tels médecins qui sont membres et qui sont impliqués dans des plaintes, doit servir à faire remarquer le standard et les exigeances professionnelles requises chez nos membres. . . ."

Quelles sortes de plaintes sont reçues par un comité de Médiation? Il est trop tôt au Canada pour faire une telle énumération à ce sujet, mais la Société Médicale du comté de Wayne dans le Michigan reçut 45 plaintes au cours d'une année, concernant les honoraires. Voici en détails, les diverses plaintes qui furent reçues:

Genres:	
Visites à domicile	5
Visites au bureau	9
Interventions chirurgicales	8
Cas d'obstétrique	12
Consultations	5
Soins à l'hôpital	8
Cause:	
Services non-satisfaisants	10
Services non-donnés par le médecin	17
Honoraires trop élevés	9
Méthodes de paiment	9
Règlement du grief:	
Grief transmis au médecin pour explication	2
Ajustement fait sur le compte par le médecin	7
Compte annulé par le médecin	6
Plainte rejetée par le comité et non fondée	26
Grief transmis au comité des règlements	2
En cour judiciaire	1
Décision attendue	1

En Ontario, les comités de médiation furent officiellement reconnus par la Division Ontarienne au cours de l'assemblée annuelle de mai 1951. Ces comités ont fonctionné sous diverses sociétés depuis cette date. Récemment, plusieurs membres de ces comités ont fait la demande pour essayer d'annoncer l'existence de ces comités au public, afin de voir la valeur de cette publicité. Cette attitude résulte du fait qu'ils ont réalisé même malgré le petit nombre de plaintes reçues, que les malentendus sont la cause principals de toutes les plaintes. Ils croient que s'il existe d'autres plaintes que les gens ne rapportent pas, il est certain que ces malentendus nuisent à la réputation du médecin dont il est question et à celle de toute la profession médicale.

Brièvement, voici comment agit en Ontario, la loi qui concerne l'établissement des comités de Médiation: Un seul comité groupant plusieurs médecins se réunit selon la nécessité pour étudier une plainte. Le médecin et le patient sont alors convoqués et le comité soumet ensuite une solution au plaignant. Dans la plupart des cas, cette solution est acceptée. Dans le cas contraire, un comité central de l'Association Médicale de l'Ontario considère alors ce problème. Mais ce comité ne possède aucun pouvoir pour des mesures disciplinaires. Cependant, si une discipline légale est nécessaire, l'on peut faire appel à un troisième comité formé par l'AMO et le Collège des Médecins et Chirurgiens.

MEN AND BOOKS

CENTENARY OF THE FACULTY OF MEDICINE OF LAVAL UNIVERSITY

ABBE ARTHUR MAHEUX, O.B.E., F.R.S.C.,
Quebec

THE QUEBEC SEMINARY became a university in 1852 as until then only arts and theology flourished on a university level in the Jesuit College founded as early as 1635. The Quebec Seminary was erected by pioneer-bishop François de Montmorency Laval in 1663. The teaching of medicine lagged badly behind, neglected by the French colonizers of the New World.

Better days came for medicine only in 1852, when the Seminary by virtue of a Royal Charter was authorized to confer university diplomas and the institution's teaching was moulded into four distinguished faculties of theology, law, arts and medicine.

THE RIGHT TO PRACTISE

Under French administration doctors qualified by apprenticeship. A young man desirous to choose the medical profession visited an accredited doctor, signed a contract of apprenticeship, followed the doctor on his daily visits to the sick, studied the known remedies, read a few books on anatomy, physiology and pharmacy, observed his master manipulating the razor, saw and bistoury and after a few years when declared competent by his master, the apprentice was registered as doctor, received the right to practise and in his turn imparted his medical knowledge to a younger candidate.

This practice prevailed in Canada under the paternal and often very benevolent supervision of senior medical officers appointed by the French government. It is regrettable that the French kings did not deem it more appropriate to send to Canada more competent doctors to teach the curriculum then enforced in European schools of medicine and surgery. With better practitioners, New France would have certainly evaded the high infantile mortality rates.

Little change in the existing situation was brought about during the first phase of the British rule in Canada. Canadian students of both English and French origins continued to learn medicine by apprenticeship.

Soon, however, large numbers of qualified doctors came to Canada from England, Scotland, Ireland and the United States equipped with diplomas attesting their competence as doctors of medicine. Their presence helped to improve the situation as the young aspirants to the profession preferred normally to learn medicine and surgery from the qualified and registered professionals.

In the meantime the first schools of medicine opened in the United States. Some were attached to universities forming competent practitioners, others disregarding in haste essential studies distributed degrees and diplomas with little concern to the actual knowledge or competence of the candidate.

Young Canadians soon turned towards the medical schools: they went to London, Edinburgh, Philadelphia and New York and only rarely to Paris. The less ambitious contented themselves with easy obtainable diplomas from certain schools across the border.

TORONTO AND MCGILL

Keeping pace with the American universities, a Canadian School of Medicine was founded in Montreal in 1823, and in Quebec City, the Incorporated School of Medicine was established in 1847 to live but a few years. In 1788 the government established an official Board of Examiners with the task to select candidates for the medical schools. The Board also had authority to accept, reject or retard the students upon completion of their studies or apprenticeships.

The lucky graduates were classed into four categories determining the fields in which they were allowed to practise: surgery, medicine, midwifery and pharmacy. The licences were either restricted to one, two or three segments of the medical profession or declared the graduate proficient in the four branches. It is noteworthy that even conditional permits to practise surgery were issued to some of the medical practitioners, stipulating however, that a competent surgeon should be consulted in difficult cases.

This Board remained in existence, substantially without change until 1848 when the College of Physicians and Surgeons was founded to take complete charge of the medical formation of students. This new organization immediately severed the existing conditions for admission, studies and practice of medicine. Students were first persuaded and then constrained by regulations to frequent hospitals.

INCORPORATED SCHOOL OF MEDICINE

In Quebec City, Laval University still in the cradle of its existence with the newly accorded Royal Charter absorbed immediately the Incorporated School of Medicine and transformed it into a Faculty. Rector Casault, a man of science himself and his principal assistants from the Seminary as well as the professors of the new faculty, adopted the regulations of the Medical College and chose to be even more severe than other schools of medicine then in existence.

They extended the program by adding more lectures on each subject and by enforcing the compulsory clinical stage in the hospitals. A large and well equipped medical library and a well provided museum to promote the teaching of anatomy were added to the faculty and before long a research laboratory was installed.

A FEARFUL CHALLENGE

From the beginning of its existence the Laval University School of Medicine adopted higher standards than the existing schools in Toronto and Montreal. It was a fearful challenge to the existence of the Faculty as most students preferred the shorter and less laborious studies. Nevertheless, the ambitious and gifted remained at Laval, accepting even the rigorous discipline of its boarding-house.

Future professors were selected from among the best students whom Laval University enabled to complete their education in the world's most famous universities, at Louvain, in Germany, England and Scotland. On their return the young professors brought with them the wealth of the latest scientific discoveries, new methods, instruments, books and techniques of hospital administration as well as pieces for the medical museums. With the increasing competence of the teaching personnel more students came to the University in spite of the stiff attitude and rigorous conditions.

The new professors brought along also new methods of teaching and their methods once adopted were successfully pursued for a number of years. Nevertheless the Faculty of Medicine remained open to continuous progress. At the time of its foundation, the association of medical research with a university curriculum was practised only in Germany. Slowly however, the idea penetrated to other European countries and then to America.

In 1920 Laval University opened a School of Chemistry with the professorial corps recruited in Switzerland. This addition of new blood

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added greatly to the quick expansion of the school along the European scientific methods.

The Faculty of Medicine quickly perceived the "dangerous competition" from the new school and as a result it stimulated and intensified its program. The Encyclical letter *Deus Scientiarum Dominus* proclaimed by the Pope to further the teaching of theology enhanced also the educational standards of other faculties in Catholic universities.

With a singular zeal the Laval Faculty of Medicine developed new research centres, which play today a vital rôle in its daily life. Numerous benevolent societies offered the young faculty their financial assistance either in form of prices or as bursaries. Today Laval looks proudly back to the splendid achievements attained in its medical laboratories and their list bears testimony to the splendid results achieved in precarious conditions, especially as far as accommodation is concerned. Continuing on the path of progress the Laval Faculty of Medicine now awaits its transfer to the new premises at the Cité Universitaire, hoping to achieve even more in the future.

THE CENTENARY CELEBRATIONS

The Centenary celebrations of Laval University will reach their peak from September 19 to 22 when an international convocation of educational leaders will bring together at Quebec, delegates from universities throughout the world, government delegates from France, Great Britain and the Vatican. Centenary proclamations, accompanied by invitations to attend this gathering, have been sent to more than 1,400 institutions in 65 countries.

During the present year, a series of symposia will be conducted at the University. Leaders in the world of science, among whom are a number of Nobel Prize winners, have accepted invitations to attend these conferences. Many cultural societies as well as some 70 national and international associations will convene in the ancient capital during the centennial year.

CENTENAIRE DE LA FACULTÉ DE MÉDECINE DE L'UNIVERSITÉ LAVAL

L'ABBÉ ARTHUR MAHEUX, O.B.E., F.R.S.C., *Quebec*

LE SÉMINAIRE DE QUÉBEC obtint en 1852 une Charte royale qui lui donnait le pouvoir d'accorder des diplômes universitaires. L'enseignement universitaire se dispensait depuis longtemps à Québec puisqu'il remonte au célèbre Collège ouvert par les Jésuites à Québec en 1635, pour le cours classique, et au Grand Séminaire de Québec, ouvert en 1663 par Mgr de Laval, premier évêque de Québec, pour la théologie.

La médecine n'avait pas eu ces avantages. Pendant longtemps prévalut la coutume de l'apprentissage. Un jeune homme voulait-il se faire médecin? Il allait trouver un médecin déjà établi dans la pratique; il signait devant notaire un contrat d'apprentissage. Il suivait son patron dans ses visites aux malades. Il s'initiait à l'administration des remèdes connus. Il voyait le médecin manier le rasoir, le bistouri ou la scie. En même temps il devait étudier quelques livres sur l'anatomie, sur la physiologie, sur la pharmacie. Le patron suivait les études de l'apprenti. Après quelques années, le patron pouvait déclarer son apprenti assez habile pour pratiquer seul; il le présentait à un bureau, où l'on inscrivait le nom du nouveau médecin. Celui-ci, à son tour, pouvait s'adjoindre un apprenti.

LES PREMIERS MÉDECINS

Ce régime prévalut en Canada pendant toute la durée du Régime français. Le gouvernement de Paris nommait un médecin pour exercer, sur la pratique médicale, une surveillance assez paternelle. On peut regretter que le Roi de France n'ait pas jugé à propos d'envoyer ici deux médecins compétents, pour enseigner les matières alors exigées des futurs chirurgiens et médecins. Avec de meilleurs praticiens il y aurait sans doute eu à déplorer moins de mortalité infantile et maternelle.

Avec le Régime anglais il n'y eut pas de changements au début: les Canadiens, français ou anglais, se contentèrent de l'apprentissage. Toutefois, notons que bon nombre de médecins vinrent d'Angleterre, d'Ecosse, d'Irlande, des Etats-Unis, avec le diplôme de docteur en médecine. La présence de ces émigrés permit une amélioration du régime de l'apprentissage. Les jeunes gens préférèrent normalement faire leur apprentissage avec un porteur de diplôme universitaire.

Aux Etats-Unis s'ouvrirent tôt des Ecoles, ou des sortes d'écoles, où l'on enseignait la médecine. Les unes, rattachées à des universités, donnaient une bonne formation. D'autres brûlaient les étapes en condensant l'enseignement, et se montraient faciles dans l'octroi des grades.

Les jeunes Canadiens se mirent à regarder du côté des écoles médicales; ils allèrent à Londres, à Edimbourg, à Philadelphie, à New York; très rarement à Paris; d'autres, moins ambitieux, se contentèrent des boîtes à diplômes, qui n'étaient pas loin de la frontière.

A TORONTO ET MCGILL

Toronto et McGill commencèrent à donner des cours de médecine. Une Ecole Canadienne de médecine surgit à Montréal. Québec même vit naître, en 1847, l'Ecole de Médecine Incorporée, qui vécut quelques années seulement.

En 1788 le gouvernement établit un Bureau officiel d'examinateurs. Ce Bureau recevait les candidats à l'étude de la médecine, les acceptait ou les rejetait ou les remettait à une autre session. Ce Bureau examinait les élèves à la fin de leurs études ou de leur apprentissage, les acceptait ou les retardait selon les cas. Il classait les candidats heureux selon leurs capacités. Les catégories étaient au nombre de quatre: chirurgie, médecine, accouchements, pharmacie. Tel candidat recevait licence de pratiquer soit l'une, soit deux, ou trois ou quatre de ces catégories. Le Bureau, même, donnait un permis conditionnel; ainsi tel homme était pleinement autorisé à pratiquer la médecine, mais en chirurgie il devait se borner aux petites opérations, quitte à consulter un confrère plus compétent dans les cas difficiles. Ce Bureau subsista—substantiellement le même—jusqu'à l'établissement du Collége des Médecins et Chirurgiens en 1848. Ce nouvel organisme prescrivit aussitôt des régles un peu plus sévères pour l'admission et à l'étude et à la pratique.

La fréquentation des hôpitaux, par les apprentis et par les étudiants, s'imposa d'abord par la persuasion, puis par des règles officielles.

FACULTÉ DE MÉDECINE

L'Université Laval, à peine nantie de sa charte, absorba l'Ecole incorporée de Québec, presque au complet, et elle en fit sa faculté de Médecine. Le recteur Casault—un scientifique lui-même—et ses principaux collégues du Séminaire, ainsi que les premiers professeurs de médecine, voulurent se montrer sévères dès le début. Ils acceptèrent toutes les règles imposées par le Collège des Médecins et Chirurgiens; ils ajoutèrent à ces exigences, en donnant en chaque matière plus de leçons et en exigeant la formation clinique dans les hôpitaux. L'enseignement théorique se complétait, non seulement par les cliniques, mais aussi par la lecture – la bibliothèque médicale était bien fournie—par l'examen de pièces anatomiques et autres—le musée était bien pourvu—et par le laboratoire.

Dès le début l'Ecole de Médecine de Laval se mit sur un pied plus élevé que celle de McGill et que l'Ecole Canadienne de Médecine de Montréal. C'était courir un grand risque, car les étudiants préféraient aller vite et s'inscrire là où le cours durait le moins longtemps.

Cependant, les jeunes gens les mieux doués et les plus ambitieux restèrent à Laval et ils acceptèrent même la rigoureuse discipline du Pensionnat.

L'Université choisit les meilleurs et leur facilita des études en Europe, pour en faire ses professeurs. Ces jeunes professeurs rapportèrent de Paris, de Louvain, d'Allemagne, d'Angleterre, d'Ecosse, les découvertes les plus récentes, les méthodes les plus nouvelles, les livres, les pièces de musée médical, les instruments, les techniques de laboratoire, les détails d'organisation hospitalière. Dès leur retour ils firent adopter ces nouveautés. Le nombre des étudiants ne cessa d'augmenter, en dépit ou à cause même de la force accrue des études.

TRAVAUX DE RECHERCHE

Pendant longtemps on se contenta de ce régime. Toutefois les yeux restaient ouverts. Au moment où naissait la faculté de médecine, l'idée de faire des travaux de recherches et surtout l'idée d'associer les recherches à l'enseignement ne se pratiquaient guère qu'en Allemagne. Cette nouveauté envahit peu à peu les autres pays d'Europe, puis d'Amerique.

En 1920 l'Université Laval ouvrait une Ecole de Chimie et elle faisait venir de Suisse les premiers professeurs de cette Ecole. Ceux-ci apportèrent avec eux le programme de recherches scientifiques dont ils avaient bénéficié en Europe.

La faculté de Médecine comprit aussitôt qu'il y avait là pour elle une concurrence dangereuse et surtout elle y vit un stimulant. Le document nommé *Deus Scientiarum Dominus*, proclamé par le Pape pour relever le niveau des études ecclésiastiques, contribua aussi à relever les études dans toutes les facultés et écoles. Bientôt la faculté de médecine se mit à organiser des travaux de recherches, et elle y mit une singulière ardeur. Aujourd'hui, ces travaux sont considérés comme le pain quotidien de la Faculté. Diverses sociétés ont offert à la faculté leur aide financière sous forme de bourses ou de prix.

On pourrait dresser un beau bilan des recherches entreprises depuis vingt ans à la faculté de médecine de l'Université Laval, et des réussites de ces travaux. Tout comme les facultés de sciences sociales, agriculture, sciences, arpentage et génie forestier, la faculté de médecine de Laval joue maintenant un rôle d'importance dans la vie scientifique de la nation canadienne. Les laboratoires facilitent la poursuite de recherches dont la contribution à l'avancement des sciences a été maintes fois soulignée dans le monde savant.

Ajoutons que tous ces travaux se sont faits dans des conditions matérielles peu satisfaisantes, surtout pour l'exiguité des locaux. Lorsque se dressera, sur la nouveau Campus, le nouvel immeuble de l'Ecole de Médecine, on peut croire que les recherches seront poussées beaucoup plus loin.

Le passé fut beau, mais l'avenir s'annonce encore plus beau. Les fêtes principales du centenaire de l'Université Laval seront célébrées du 19 au 22 septembre. A cette occasion, des représentants des universités et des institutions culturelles de presque tous les pays du monde se réuniront à Québec dans le but de rendre hommage à la plus vieille université française d'Amérique, qui maintient dans le continent nord-américain le prestige de la culture chrétienne et latine.

MEDICAL SOCIETIES

XXIIe CONGRES DES MEDECINS DE LANGUE FRANCAISE DU CANADA

Programme Scientifique Preliminaire Centenaire de la Faculte de Médicine

Mardi, 23 Septembre 1952

2.30 p.m.—*La biologie des glandes surrénales 1ère Partie —Notions fondamentales.*

Président: Pr Robert Courrier, Collège de France.

(a) Rôle de l'hypophyse vis-àvis des surrénales: J. B, Collip, doyen de London, Ont. (b) Médullo-surrénale: les effets physiologiques, pharmacologiques et pathologiques de la médullo-surrénale: Henri Hermann, doyen de Lyon, France. (c) Cortico-surrénale: les effets physiologiques, pharmacologiques et pathologiques de la cortico-surrénale: Hans Selyé, Montreal. (d) En discussion: Pr Robert Courrier.

Mercredi, 24 Septembre 1952

9.00 a.m.—*Séance médico-chirurgicale.*

(1) Antonio Lecours, Ottawa: La sympathectomie dorsale (films). (2) Lucien Larue, Québec: L'épilepsie, aspect médical. (3) Jean Sirois, Québec: L'épilepsie, aspect chirurgical. (4) J.-Edouard Samson, Montréal: Aspect clinique et thérapeutique de la scoliose de croissance. (5) Guy Bertrand, Sherbrooke: Recherches sur l'irradiation nerveuse de la douleur abdominale. En discussion: Un médecin invité.

2.30 p.m.—*Symposium sur les surrénales.*

IIe Partie-Applications cliniques.

(a) Syndrome clinique d'hypo- et d'hyper-fonctionnement: Pr Bénard, Paris. (b) Surrénale et hypertension artérielle: Pr Mouquin, Paris. (c) En discussion: Pr Louis-Paul Dugal, Québec.

9.00 p.m.—*Histoire de la Médecine, sous auspices de la Société d'Histoire de la Médecine de Québec.*

(1) Sylvio Leblond, Québec: Le Dr Joseph Painchaud. (2) Roméo Boucher, Montréal: La médecine en 1852. (3) Charles-A. Marin, Québec: Quelques mythomaniaques célèbres. (4) Gabriel Nadeau, Rutland, Mass.

Exposition de documents anciens: Drs Benoit Boucher, Antoine Roy et Charles-A. Martin.

Jeudi, 25 Septembre 1952

9.00 a.m.—*Séance médico-chirurgicale.*

(1) Jean-Paul Roger et Jean-Marie Lemieux, Québec: Thoracoplastie et résection pulmonaire. (2) Wilfrid Caron, Québec: Considérations sur la chirurgie anorectale. (3) Eustace Morin, Québec: Les avitaminoses. (4) Gérard Gagnon, Chicoutimi: Les diverticulites du Meckel. (5) Roland Cauchon, Québec: Cancer des voies urinaires. (6) Ernest Dumont, Campbellton: Traitement des brûlures intéressant 50% et plus de la surface cutanée. En discussion: Un médecin invité.

2.30 p.m.—*Maladies du thorax.*

(1) Jules Prévost et Léandre Décarie, Montréal: Tumeurs du médiastin. (2) Paul Robert, Montréal: Diagnostic du cancer du poumon. (3) Joffre Gravel, Quebec: Diagnostic et traitement chirurgical des malformations du cœur et des gros vaisseaux. (4) Fernando Hudon, Québec: L'anesthésie dans la chirurgie thoracique. En discussion: Un médecin invité.

9.00 p.m. *Economie medicale.*

Vendredi, 26 Septembre 1952

9.00 a.m.—*Séance médico-chirurgicale.*

(1) Pierre Morisset, St-Georges de Beauce: Les données récentes sur l'infarctus du myocarde. (2) Hector Beaudet, Québec: Cancer de l'œsophage. (3) Jean-Louis Bonenfant, Québec: Les réticuloses aigues de l'adulte. (4) Jean-Paul Dugal, Québec: La colite ulcéreuse. (5) Emile Gaumond, Québec: La vitaminothérapie à haute dose en dermatologie. En discussion: John Hamilton, Toronto.

2.30 p.m.—*Pathologie vasculaire des membres.*

(1) Jacques Turcot, Québec: Les troubles capillaires et lymphatiques (diagnostic et traitement). (2) Georges-Etienne Cartier, Montréeal: Les troubles de la circulation veineuse superficielle et profonde, y compris les ulcères variqueux (diagnostic et traitment). (3) Richard Lessard, Québec: Les troubles de la circulation artérielle (diagnostic). (4) Gustave Auger, Québec: Les troubles de la circulation artérielle (traitement). En discussion: Un médecin invité.

QUEBEC DIVISION, CANADIAN ANÆSTHETISTS' SOCIETY

The Quebec Division of the Canadian Anæsthetists' Society met at the Notre Dame Hospital, Montreal, on Saturday, May 17, for its final meeting of the current session.

The chief subject of the day's meeting was the conduct of cases for Commissurotomy. The interest was high and the demonstration of surgical, medical and anæsthetic competence and co-operation was every bit as good as that seen in larger and more highly publicized medical centres. Much time and labour had been spent in arranging several very instructive exhibits by the Department of Anæsthesia. As interlude to these stimulating sessions, the members enjoyed a sumptuous luncheon provided by the Sisters in charge of the hospital and were most graciously entertained at the home of Doctor Cousineau before the dinner hour.

WINNIPEG MEDICAL SOCIETY

The annual meeting of the Winnipeg Medical Society was held in the Medical College on May 16. Reports indicated that the Society, now in its 39th year, is flourishing. The retiring President, Dr. S. A. Boyd, gave an address on "The Philosophy of a Pædiatrician".

Life memberships were conferred on Dr. Fred Cadham, Dr. C. R. Gilmour, Dr. C. R. Rice and Dr. O. S. Waugh.

Officers for 1952-53 were elected as follows: President: Dr. A. E. Childe. Vice-President: Dr. D. Swartz. Secretary: Dr. E. L. Stephenson. Treasurer: Dr. D. Parkinson. Trustee: Dr. A. R. Birt.

CORRESPONDENCE

WHITHER PSYCHIATRY?

To the Editor:

Is there anything wrong with this world? Why, of course, many things are wrong. Is there anything wrong with Psychiatry? Probably. As in all science, there are still many shortcomings and inadequacies. Is there anything wrong with psychiatrists? Yes, indeed. It seems, they too are human and fallacious. For, if Freud gave us operative concepts of "superego" and "rationalization", nature endowed us with an ego and the drive and power to rationalize our quasi-scientific de-rationalization.

I did not attend in person the psychiatric deliberations in Atlantic City in May 1952. I was there, however, by proxy. It was adequately, I hope, covered by the Medicine

section of *Time Magazine*, (May 26, 1952, page 42). Of course, progress in psychiatry, as well as in other branches of science, including medicine, could not possibly be properly transmitted to the intellectual section of humanity, except by coverage and write-up in one of the most widely read general magazines. Our scientific bodies see to it that great progress of science is well publicized, since grants are needed and the antiquated concept of professional ethics regarding publicity, etc., is definitely outmoded and outdated, and is not in keeping with the best interests of scientific productivity.

"Mind Matters" is only about one-third of the section in *Time* reporting the wise deliberations of American psychiatrists at the above mentioned convention. The other two-thirds, approximately, are devoted to "One Who Survives". The latter portion describes Dr. Elie A. Cohen, who by way of the Low Countries, the Auschwitz gas chambers, and Arnhem made startling observations, weighty studies, and all-important analyses of human behaviour. The result? His book *Het Duitse Concentratiekamp*, which was selling so well last week that it was in its second edition—a rare thing for a doctoral thesis! (Read the book, and if you are too occupied with your practice, just refer to the footnote in the above mentioned write-up). Finally, the résumé and conclusion, it naturally being the kernel of the scientific paper: "Dr. Cohen considers that his own psychology is now sound again. 'Writing the thesis was a catharsis for me', he says. 'I am free of my troubles!' He has remarried, has a baby daughter, and is practising in Arnhem."

It might be very wise and a good method in counselling and psychotherapy for psychiatrists, psychologists, social workers, clergymen and educationists to widely publicize and recommend Dr. Cohen's book to all patients-to-be and patients under extreme emotional stress, either as a matter of prophylaxis or therapy, to prove that it is actually possible not to break down under the extreme trials and tribulations of life, but indeed to become free from the greatest of troubles, if one is able to write and rewrite a book three times, "first with all my emotions, then with some of my emotions, finally with no emotions". My congratulations to the author. His book is a great contribution to Science, and his superego supersedes even the supernatural supersuds. Not even the great Freud could have done better. Congratulations to the Psychiatric Convention in Atlantic City! Congratulations to Psychiatry of 1952!

M. ETZIONY
Montreal.

SPECIAL CORRESPONDENCE

The London Letter

(From our own correspondent)

FLUORINE AND DENTAL CARIES

Scotland now claims the honour of instituting the first large-scale experimental investigation in this country into the influence of fluorine on dental caries. The town of Kilmarnock, with a population of 42,000, draws its water supplies from two different sources. Examination has revealed a low fluorine content in the water from both sources—0.28 and 0.12 parts per million respectively. The 7,000 school children in the town are to be examined to ascertain the state of their teeth. Fluorine will then be added to one of the town's sources of water to raise its content to 1.0 to 1.5 parts per million, whilst the other source will be left unchanged.

The children will therefore be divided into two groups—those who are receiving what is now considered the optimum intake of fluorine and those who are receiving sub-optimal amounts. Regular examination of their teeth over a period of years should yield valuable evidence as to the influence of fluorine on caries. It is estimated that adding fluorine to the water supply will cost about £3 a day. The whole scheme constitutes a beautifully designed experiment in preventive medicine.

MATERNITY SERVICES

The report of the Central Health Services Council for 1951, which has just been published, contains an interesting section on the problem of the selection of maternity cases for admission to hospital. The demand for hospital confinements has been steadily growing. The proportion of confinements taking place in hospital or nursing home has risen from 39.7% in 1937 to 58.4% in 1949. The proportions have varied considerably throughout the country—from 30% in some parts to 88% in others. It is pointed out that one of the factors which has tended to make hospital confinement more popular is that under the National Health Service it is free, whereas a home confinement involves expenditure on attendance, equipment and the like.

In order to ensure that existing beds are used to the best advantage the Council has advised the Minister of Health that priority should be accorded to all cases in which there are (a) medical or obstetrical reasons, or (b) adverse social conditions, especially bad housing. It is recommended that the task of assessing adverse social conditions should be entrusted to the medical officer of health of the local health authority, and that the length of stay in hospital should be ten days, preferably extending to fourteen days. Emphasis is laid upon the necessity for ensuring an adequate number of beds for emergencies, and it is suggested that this could be attained by bookings being limited to an 80% occupation.

HOME HELPS

The first international conference on home help service, organized by the National Association of Home Help Organizers, has recently been held in London. In opening the conference, the Parliamentary Secretary to the Ministry of Health summarized the work of the Home Help Service which was inaugurated over here as part of the National Health Service. The number of full-time staff has risen from 3,108 to 3,600 and of part-time staff from 8,230 to 21,741. In 1951, 166,392 cases were dealt with. Every local health authority in the country has a Home Help Service, and there can be no doubt as to the important rôle it is playing by providing nursing services at home and so reducing the demand for beds in hospital.

The need for such a service is amply confirmed by the report just published by the national cancer survey committee of the Marie Curie Hospital and the Queen's Institute of District Nurses, which deals with the problem of the home nursing of patients with cancer. The report states that a home help service has been available to 5,921 of the 7,050 patients included in the survey. The conditions under which some of the elderly patients were living were deplorable, and the committee recommends the establishment of residential homes to which these elderly patients, whose home conditions are unsatisfactory, could be admitted either permanently or for short periods.

B.M.A. ANNUAL MEETING

The 120th Annual Meeting of the British Medical Association, which is to be held in Dublin in July as a joint meeting with the Irish Medical Association, under the presidency of Professor P. T. O'Farrell of Dublin, will be marked by two interesting innovations. One is the holding of three plenary scientific sessions in addition to the usual sectional scientific meetings. These plenary sessions, which will deal with "Death in early adult life", "The relief of pain", and "Clinical derangements of the body fluids", will consist of opening papers by experts followed by questions and discussions. The other innovation, inspired by Transatlantic influences, is the holding of a scientific exhibition which is to replace the traditional, but somewhat turgid, pathological museum which has always been a feature of previous meetings. There is also to be an exhibition of doctors' hobbies.

London, June 1952.

WILLIAM A. R. THOMSON

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OBITUARIES

DR. GEORGE PERRY ARMSTRONG of Portage la Prairie, Manitoba, died on May 5 at the Winnipeg General Hospital. Born and educated in Carman he graduated with honours in 1911 from the first five year class in medicine at the University of Manitoba. His first practice was at Coronation, Alta., and in 1915 he went overseas as a lieutenant in the C.A.M.C. He won the Military Cross in France and later as a Major with the R.A.M.C. he was in charge of a hospital in Mesopotamia. Returning to Manitoba in 1919 he practised in Portage la Prairie until his death. He was a Fellow of the American College of Surgeons from 1927. His only son Flt. Sergeant G. P. Armstrong, R.C.A.F. was killed in action over Italy in 1943. He is survived by his widow, two brothers and two sisters.

DR. JOHN INGRAHAM BATES, brilliant young surgeon and McGill graduate, died after a brief illness at the age of 29, in the New York Hospital, New York, on May 21. Dr. Bates was in New York completing his training in neurosurgery at the Cornell University Medical Centre. He was working on a second fellowship, supported by the Kinsmen's Clubs through the Canadian Cancer Society.

Born in Bathurst, N.B., Dr. Bates took his pre-medical education at Westminster School and London University in England. He received his M.D., C.M. at McGill University and in 1948 also obtained his MSc. at McGill. Since his graduation he had done extensive postgraduate work and research. He interned at Montreal General Hospital, served with the R.C.N., trained in general surgery at the University of Pennsylvania Hospital, Philadelphia, and in neurology at Queen's Square Hospital, London, England.

He was associated with the Montreal Neurological Institute under Dr. Wilder Penfield from 1947 and when he went to New York last year was assistant resident in clinical neurosurgery there. Dr. Bates, who had a notable ability for making friends, was well known in medical circles in Montreal.

Before going to New York he had twice won scholarships for work here, from the Cancer Research Society of Montreal and from the National Cancer Institute of Canada. Besides his widow he leaves a daughter.

DR. OSWALD J. DAY, director of Child Health Services in Winnipeg since 1941, died at the Winnipeg General Hospital May 1, aged 61. Born in Orillia, Ont., he graduated in medicine from the University of Toronto in 1914. In that year he joined the R.A.M.C., and served overseas as medical officer of a Guards battalion. He was awarded the Military Cross in April 1917, and the bar in July 1917. Later he became Lieut.-Colonel of a Field Ambulance. Returning to Canada he did postgraduate work at Bellevue Hospital, New York, and then came to Winnipeg in 1920. He was a pædiatrician and was prominent on the staff of the Children's Hospital and the medical faculty of the University. He served a term as President of the Winnipeg Medical Society and was a member of the Northwestern Pædiatrics Society and the Canadian Society of Pædiatrics, and chief of the pædiatric department of the Winnipeg Clinic. He is survived by his wife, two daughters and twin sons, two sisters and two brothers, one of whom is Dr. Allan Day of Edmonton.

DR. ERNEST DECARY, well known physician who began practice in Lachine, Que., died on April 14 at St. Joseph Hospital, after a short illness. He was 68. Dr. Decary was for many years anæsthetist at St. Joseph Hospital, and was chairman of its medical board. In Lachine, he was active in parish affairs, was a director of the Caisse Populaire, member of the Independent Catholic League, and a tertiary of St. Franois.

Survivors include a son and two daughters.

DR. A. FREDERICK DEMARY, a life member of the Ontario Medical Association, died on April 11. Graduating from University of Toronto in 1904, he also studied at Universities in England and Scotland, receiving the Licentiate of the Royal College of Physicians from the University of Edinburgh. He became a Fellow of the Royal College of Surgeons.

He started his private practice in Toronto in the district which used to be called Little York. He attended the Presbyterian Church. He leaves his widow; two daughters, and a son.

DR. WALTER HENRY GABRIEL GIBBS of Selkirk, Manitoba, died at Vancouver on April 26 in his 78th year, and was buried in Selkirk on May 3. He was a life member of the Winnipeg Medical Society and a senior member of the Canadian Medical Association. Born in England, he came to Canada with his parents and lived at Stonewall for a time before moving to Selkirk in 1897. Apprenticed to a druggist he graduated in Pharmacy and opened a drug store in Selkirk in 1897. Graduating from Manitoba Medical College in 1908 he practised at Carievale, Sask., The Pas and Cowdry before returning to Selkirk. During the First World War he served overseas with the C.A.M.C.

He was mayor of Selkirk, a member of the Selkirk school board and contested the constituency of Selkirk in 1925. He was a coroner for Manitoba. Surviving are a son, four brothers and four sisters.

DR. ALFRED K. HAYWOOD, O.B.E., died on May 7 at Vancouver in his 66th year. He was superintendent of the Vancouver General Hospital for 17 years until his retirement in 1947. He took over the Vancouver post after serving as superintendent of the Montreal General Hospital for 13 years. He was in the Canadian Army, from 1914 to 1917.

Dr. Haywood was one of the key witnesses in Montreal's police inquiry in January, 1925—an inquiry which he helped bring about. He advocated absolute suppression of the city's commercialized vice district. The frankness of this hospital administrator, who has been rated among the greatest that Canada has ever produced, was matched by his bravery. Dr. Haywood was the first to receive, in 1949, the George Findlay Stephens Memorial Award, established in memory of the late Dr. George F. Stephens, former superintendent of the Royal Victoria Hospital, from the Canadian Hospital Council.

Dr. Haywood is survived by his widow, a son and a daughter.

DR. L. A. HEBERT, well-known doctor and former president of the East End Medical Association of Montreal, died in his 67th year on May 10. Born at Cohoes, N.Y., he took his classical studies at the Joliette Seminary and his medical course at the University of Montreal. He practised in the Hochelaga district until his death.

Dr. Hebert was director of *Action Medicale*, Montreal French-language medical journal, and organist at the Tres St. Redempteur Church. He has been heard on radio programs, having directed the Charmant Trio and the Mignon Trio, comprised of his three daughters.

He is survived by his widow, four daughters, and three sons.

DR. WILLIAM ALEXANDER HOWDEN died at his home at Neepawa on April 27, aged 47 years. Born in Neepawa he was educated there and at Winnipeg where he graduated in Medicine in 1931 from the University of Manitoba. He practised in Neepawa with the exception of five years' service with the R.C.A.M.C. during the second world war. He is survived by his widow and three sons.

DR. AMOS FRANK KAY, aged 72, a physician in Schomberg, Ont., for 45 years, died suddenly on May 8 at Toronto East General Hospital. He was born in Virginia, North York, and attended Port Perry High School.

Dr. Kay graduated in medicine from the University of Toronto in 1907 and entered practice. Prior to attending university he taught school for three years. He was an active member of Schomberg United Church and was for some years an elder. He was a member of the Lions Club and the Masonic Order. He leaves his widow and a son.

LE DR LUDGER LABELLE, est décédé à l'Hôtel-Dieu, de Saint-Jérôme, P.Q., à l'âge de 81 ans. Le défunt était avantageusement connu dans sa ville natale où il pratiqua la médecine depuis près de 60 ans. Le docteur Labelle a été échevin de la ville de Saint-Jérôme, commissaire d'école et recorder pendant plus de 20 ans.

Le défunt laisse douze enfants.

DR. H. B. LONGMORE, a physician in Campbellford, Ont., for nearly half a century, died on May 10. He was 79. Dr. Longmore was a native of the Napanee district and a graduate of Queen's University in 1907. He was the first president of the Campbellford Rotary Club, a Mason and a member of the IOOF. He leaves a daughter, and a son.

AN APPRECIATION

In the passing of Dr. Longmore, the medical fraternity of Ontario has lost more than is immediately obvious. It would seem unreasonable to say that a man of his years, already in failing health for some time, was carrying a sufficient load that would cause his colleagues to falter when he fell from their ranks. But the sincere enthusiasm for medical practice which he has been radiating for so many years is gone and this is a loss which modern medicine does not easily replace.

Holiday periods were so arranged that he could bask in the stimulating light of recent advances to be found at the leading teaching centres of this country as well as in such meccas as Johns-Hopkins and the Mayo Clinic. In 1924, this even led him as far afield as Vienna. Seldom did he miss the annual meetings of the Ontario Medical Association of which he was made a life member, and as often as possible he was in attendance at the meetings of the Canadian Medical Association. This desire to see unity and co-operation among physicians gave invaluable aid in the conception and later delivery of the Northumberland-Durham Medical Society in 1919 of which he continued as an active member, holding the various offices on several occasions.

Yet his interests were not only medical, for the United Church, the Oddfellows, and the Masons all felt the effects of his energy. In addition he was the first president of the Campbellford Rotary Club. His winning of the men's singles tournament in the Trent Valley Lawn Tennis League at sixty was not considered unusual by those who knew him well. Accepting the restrictions of age with complacency he then turned to golf and summer Wednesdays usually found him on the green at Trenton, Belleville, Peterborough, or Cobourg. He was also a familiar spectator at the ball park and hockey arena.

But still, even with all these interests, first and foremost in his mind was always the ethical conduct of his practice. That he was successful in this there can be no doubt. The answer is only too obvious to us who are left to satisfy his patients, for with the good doctor went his tools of success. JAS. R. ANDERSON

DR. JOHN HENRY ALLAN MACDONALD of Connaught, Ont., died on April 19, 1952, in Haileybury Hospital. He was 59 years old. Born in Glencoe, Ont. He graduated in Medicine from the University of Toronto in 1921. He practised in Toronto, Appin and a short time in Timmins, before going to Connaught for 16 years. Surviving are his widow and three sons.

DR. ROY MACGREGOR MACLEAN of McAdam, N.B., died on April 12 at his home. Dr. MacLean had been practising his profession in this community for the past 25 years and was a highly respected citizen. He had been in ill health for some time, but had attended his practise as usual this past week.

In his 52nd year, Dr. MacLean was born in Botwood, Nfld., in 1900. In 1924 he graduated from Queen's University and began his medical career at Matapedia, Que., where he practised for two years. Before taking up residence in McAdam in 1927, Dr. MacLean spent six months at Canterbury. He is survived by his widow and one son.

DR. WILLIAM MAGNER, chief pathologist and director of laboratories, St. Michael's Hospital, Toronto, died on May 11 of a coronary thrombosis. He was 65. For 14 years Dr. Magner had held the post of assistant professor of pathology at the University of Toronto. He was also chief adviser of the medical board of St. Michael's with which he had been associated since 1921.

Dr. Magner was a past president of the Canadian Medical Association, the Ontario Medical Association and the Toronto Academy of Medicine. Born in Cork, Ireland, he attended the Christian Brothers College and graduated in 1909 from University College, Cork, with the degrees of M.B., B.Ch. and B.A.O. Later he received the degrees of D.P.H., N.U.I. and M.D. The University of Saskatchewan conferred upon him the honorary degree of LL.D.

In 1910 he was appointed demonstrator and lecturer in pathology at University College, Cork. He joined the staff of the University of Toronto as lecturer in pathology in 1921 and was appointed assistant professor of pathology in 1938.

A veteran of the First World War, Dr. Magner served as bacteriologist with the Southern District Irish Command and later was with the 10th Division at Gallipoli. Subsequently he held the rank of Captain with the R.A.M.C. He leaves his widow, four sons and two daughters.

DR. CHARLES ROBERT MAY, prominent Regina, Sask., physician, died on May 2 afted a brief illness. Dr. May was 52 years old. He had practiced here since 1926.

Dr. May was born in Castleton, Ont., coming west to Melfort, Sask., at the age of four. After attending school in Melfort, he took his medical training at University of Toronto, graduating in 1925. He interned at Regina's General hospital. He was president of the Regina Kinsmen Club in 1929-30 and was district governor for Kinsmen in 1936. He was also a past-president of the Regina Medical Association.

Surviving are his widow and two sons.

DR. ROBERT R. McCORMICK, a physician in Endicott, N.Y., for 28 years, and a native of Arnprior, died on April 26 at Sunnybrook Hospital. He served in France during the First World War with the McGill Medical Unit. A graduate of McGill University, he took post-graduate work in New York and Montreal. During the Second World War he was an examiner of draftees in the U.S.

Dr. McCormick exhibited English setters at shows in the U.S. and Toronto. Dr. McCormick had been a patient at Sunnybrook two months. He leaves his widow, three sons, and a daughter.

DR. JOHN CLARK McCULLOUGH, aged 61, died at his home in New Liskeard, Ont., on April 26 after a lingering illness. Graduating from the University of Toronto Medical School in 1916, he enlisted in November of the same year with the R.C.A.M.C., served in France with the Lord Strathcona Horse and was seriously wounded in 1918. He was awarded the Military Cross after Amiens.

On his return to Canada in 1919 he became associated with his late brother, Dr. J. S. McCullough in New Liskeard. He leaves his widow, and three daughters.

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DR. DUNCAN H. McINTOSH, former practising physician in Carleton Place, Ont., died on April 25. He was in his 87th year. Dr. McIntosh had been retired for some time but maintained his interest in Masonic activities. Born at Perth, and when young came to Carleton Place where he received his early education. He graduated in medicine from McGill University in 1889 and practised in Pakenham where he remained for some years. He came to Carleton Place about 1892 and was its medical officer of health for many years. It is believed he was the first to hold this office. On retiring from practice he entered the insurance business for a time.

DR. JEAN CHARLES MILLER, professor at the Faculty of Medicine of Laval University, Quebec City, died suddenly on April 13 in Montreal, at the age of 54 years. Dr. Miller was a departmental head at the Dufrost Pavillons and Jemmerais. He was also psychiatric consultant at the Veterans Hospital.

At the Faculty of Medicine of Laval University, the deceased was in charge of the mental hygiene course and also taught at the faculty of Social Science. He was certified as a specialist in psychiatry of the Royal College of Physicians and Surgeons. Dr. Miller was given credit for numerous works which contributed to the prestige of Laval University as well as his own personal reputation. Besides his widow, he is survived by three children.

DR. GARDNER WINTHROPE MURRAY, aged 54, died in Edmonton on March 2, 1952, after an illness of several months' duration.

Born at Bayside, N.B., he lived in Alberta, and volunteered from that Province during the first Great War. He saw active service in France and Belgium. During the same war, he served for a time in the American Army. His medical education was received after the war, at Guy's Hospital, London. After service in China, illness necessitated his retirement to civilian life. He then joined the staff of the London County Mental Hospital Service as Medical Officer, where he remained until 1940, when he came to Canada. After a short period in Nova Scotia, he was appointed to the staff of the Provincial Mental Hospital, Ponoka, Alberta. At the time of his death, he was Senior Medical Officer. He held the D.P.M., London and the Certificate in Psychiatry of the R.C.P.& S. of Canada. Dr. Murray was a skilled physician, an astute psychiatrist, and a man of wide general knowledge. He is survived by his widow.

DR. JOHN ERNEST PALMER, aged 69, well known Calgary urological surgeon died on May 7 in Holy Cross hospital following a brief illness. Dr. Palmer was born in Gagetown, N.B. He graduated in arts from the University of New Brunswick in 1905 and in medicine from McGill University in 1909. He had been practising in Calgary for some 41 years. He was a member of the College of Physicians and Surgeons of Canada.

The doctor, of modest and retiring disposition, was one of the most prominent urologists in this district. During the First Great War, because of a physical disability, he was unable to enter military service, but, determined to serve he went overseas in 1915 and did special hospital work in England. He served under the famous urologist, Sir James Thompson-Walker in St. Peter's hospital in London and as a result of this experience devoted his life to this specialty on his return to Calgary in 1919. Surviving are his widow, one son and a daughter.

DR. JACOB ROSENBAUM, director of the ophthalmic department of Jewish General Hospital, Montreal, died on April 26. Born in Austria, Dr. Rosenbaum came to Canada as a child. He graduated from McGill University in 1912 and was on the staff of Royal Victoria Hospital 40 years before joining Jewish General Hospital. He retired from the staff of McGill University in 1950.

In the First World War he was a captain in the C.A.M.C. He was consultant at Mount Sinai Sanatorium, Montreal Hebrew Orphans Home, Herzl Dispensary and Hebrew Consumptive Society. He was a member of Montreal Ophthalmologist Society, Canadian Ophthalmological Society, American Medical Association, American College of Surgeons and American Medical Association, American College of Surgeons and American Academy of Ophthalmology and Oto-Laryngology. Dr. Rosenbaum is survived by his widow, a son and a daughter.

DR. HARRY A. "CAMMY" TAYLOR, Wallaceburg, Ont., died on April 16 in the St. Joseph's Hospital, Chatham. Dr. Taylor, one of Kent's best known citizens, had been ill for two weeks. He was not only noted for his medical practice in Wallaceburg, but also for the unselfish contribution of time and labour toward the betterment of the community and the sport within the town.

Dr. Taylor was a graduate of the University of Toronto, 1909. Following graduation he interned at St. Michael's Hospital, Toronto, and later worked with the pathological laboratory of the Ontario Department of Health. He practised in Wallaceburg until a few years ago, when failing eyesight forced his retirement. During his years of practice, Dr. Taylor served as the district medical officer of health and also district coroner. Surviving are his widow, one son and one daughter.

DR. ISIDORE TROSSMAN, Outremont, Que., and his son, Walter Arnold, both died within one week, and a double funeral was held. Walter, aged 27, died on April 15 at the Royal Victoria Hospital and Dr. Trossman, who was 64, died suddenly at his home on April 16.

Dr. Trossman, who was born in Russia in 1891, came to Montreal in 1911 and was a resident of Outremont for 20 years. He obtained his elementary school training by studying in his spare time at home. He graduated from the School of Medicine at McGill University in 1919 and entered into active practice the following year. He taught at McGill for six years following his graduation.

Dr. Trossman was one of the pioneers in metabolism research at the Montreal General Hospital and was active in the field of medicine up to the time of his death. They are survived by Mrs. Trossman, two sons, and a daughter.

DR. JAMES G. TURNBULL, well-known Leamington physician, died in Vancouver General Hospital on April 5 after several weeks' illness. He was 65 years of age. Born in Grand Bend, he came to Leamington from Sudbury about 37 years ago and had practiced medicine in this town up until about a year ago. He had been residing in Vancouver for the past six months.

During his years in Leamington, Dr. Turnbull was a prominent member of Knox Presbyterian Church and served in several official capacities on the church Board of Managers. Surviving, besides his widow are two sons and two daughters.

ABSTRACTS *from current literature*

MEDICINE

The Prevalence of Psychiatric Illness in a Medical Out-Patient Clinic.

ROBERTS, B. H. AND NORTON, N. M.: NEW ENGLAND J. MED., 246: 82, 1952.

This study demonstrates that the practice of medicine in the out-patient clinic is geared for the detection of organic disease and that the old-fashioned total observation of the patient has been supplanted by the collection of laboratory data. A survey of 50 consecutive new patients attending the medical out-patient department of a university hospital showed that 80% received a

diagnosis of psychiatric illness which was arrived at through the exclusion of organic disease. A positive psychiatric diagnosis based on the symptoms or history was possible in 72%. Observation of this group of patients demonstrated a general tendency to neglect the psychiatric component until organic disease had been eliminated. Even with a psychiatrist in attendance the few psychiatric consultations were unsatisfactory.

NORMAN S. SKINNER

The Surgical Treatment of Peptic Ulcer.

LAHEY, F. H. AND MARSHALL, S. F.: NEW ENGLAND J. MED., 246: 115, 1952.

Of 16,000 cases of peptic ulcer treated at the Lahey Clinic some 1,600 have undergone partial gastrectomy. The authors stress the need for close co-operation between surgeon and gastroenterologist in the treatment of all cases and criticize the all too prevalent tendency to delay surgery in chronic duodenal ulcers to the point where increasing ulceration and fibrosis increases the surgical risk, which is directly proportional to the degree of ulceration of the head of the pancreas.

The decision for or against operation in the presence of massive hæmorrhage from peptic ulcer is a difficult one and must be individualized and, if surgery is to be performed, it should be done early. Operation is definitely indicated if the blood volume drops below 60%. Exsanguination and accompanying shock are not contraindications since they are overcome by control of the bleeding vessel and transfusion.

The incidence of malignancy is very high (10 to 20%) in gastric ulcer and if such an ulcer does not heal after six weeks careful observation in hospital gastric resection is indicated. All apparently healed gastric ulcers should be followed with great care and all recurrences should be promptly resected.

The dumping syndrome rarely was met with in this large series because of the employment of the Hofmeister type of anastomosis.

One of the serious complications of partial gastrectomy is pancreatitis. This may occur even without the removal of indurated ulcers from the head of the pancreas. It is important to recognize and securely ligate the duct of Santorini and also to avoid the introduction of needles or sutures into the pancreas.

Vagotomy has no place in the treatment of chronic peptic ulcer, except possibly as a last resort after failure of all other measures.

NORMAN S. SKINNER

Effect of Combined Therapy (Dihydrostreptomycin and PAS) on the Emergence of Streptomycin-Resistant Strains of Tubercle Bacilli.

SHANE, S. J., LAURIE, J. H., RILEY, C. AND BOUTILIER, M.: NEW ENGLAND J. MED., 246: 132, 1952.

When PAS is administered along with streptomycin in the treatment of tuberculosis it has great value in preventing or delaying the development of bacterial resistance to the streptomycin.

Of 50 patients with moderate to far advanced tuberculosis seventeen formed a control group, receiving dihydrostreptomycin alone. The remainder were given PAS along with the dihydrostreptomycin. Treatment was continued for ninety days in all cases.

Positive cultures after termination of treatment were obtained in 21 of the combined-therapy group and six of the cultured organisms were resistant to streptomycin. Of eleven positive cultures obtained after treatment with dihydrostreptomycin alone nine were resistant.

NORMAN S. SKINNER

Clinical Evaluation of Aureomycin and Chloramphenicol in Herpes Zoster.

KASS, E. H., AYCOCK, R. R. AND FINLAND, M.: NEW ENGLAND J. MED., 246: 167, 1952.

Patients with herpes zoster were divided into three groups, 25 being treated with aureomycin, 25 with chloramphenicol and 22 with empirin compound (acetylsalicylic acid, phenacetin and caffeine). No significant difference was noted in the results obtained with the three different therapeutic agents and it was concluded that the antibiotics employed were of no value in the treatment of the disease. The majority of cases of herpes zoster are mild in nature which is likely to lead to false conclusions regarding the efficacy of any therapeutic agent, unless control groups are treated with placebos at the same time.

NORMAN S. SKINNER

SURGERY

The Surgical Treatment of Massive Pulmonary Embolism.

BENICHONX, R.: J. INT. CHIR., 11: 464, 1951.

From 1926 to 1949 Professor Crafoord of Stockholm performed Trendelenburg's operation 22 times. All the patients were in surgical wards when the complication occurred and had spent a long period in bed. Three were cured by the embolectomy. Many survived for hours or days but succumbed, usually from cerebral anoxia. The indications for operation are discussed: acute progressive dilatation of the right heart and jugular veins being emphasized. A delay of more than 25 minutes before operative treatment is fatal. A second pulmonary embolism after the first embolectomy is not infrequent.

Opening the pulmonary artery relieves the cardiac dilatation. Embolectomy must be complete as possible. cardiac massage is frequently necessary for standstill is common. Controlled artificial respiration is usually necessary during the operation.

The use of heparin, early ambulation and the better control of infection has resulted in a reduction in the frequency of pulmonary embolism, but it has not disappeared. Trendelenburg's operation still has a place.

BURNS PLEWES

Carcinoid Tumours of the Small Intestine.

BOWERS, C. R. AND CHEEK, J. G.: ARCH. SURG., 64: 92, 1952.

Carcinoids are neoplasms characterized by the tumorous proliferation of the argentaffin cells of the deeper mucosa in the gastro-intestinal tract and its appendages. Ninety per cent or more are found in the appendiceal and terminal ileal regions. Since the first reported case in 1867 there have been, up to 1950, over 400 found in the literature. The authors report an additional case of malignant ileal argentaffinoma with frank mucosal ulceration in a 32 year old woman. Surgical removal, as radical as the extension of the tumour demands, affords an excellent prognosis.

In the benign type of carcinoid, in those without any evidence of transserosal or intra-mesenteric or metastatic spread, clinical evidence is lacking in 90% of patients. In the malignant carcinoids, signs of intestinal obstruction are present usually in 50% of cases. These tumours are slow growing which may explain why symptoms may have been present for twenty years or more. There may be partial intestinal obstruction, cramping abdominal pain, anorexia or nausea and vomiting, with or without intermittent diarrhœa, constipation and dyspeptic complaints. Palpable abdominal masses may be found and are invariably present where malignant carcinoids have metastasized.

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The case presented by the authors was an unusual metastasizing carcinoid tumour of the ilium, in which there was probably one of the largest carcinoid ulcers in the small bowel reported. Additional features were unexplained anæmia (chronic blood loss type) and an asymptomatic abdominal mass of two years' duration; intestinal obstruction did not occur. G. E. LEARMONTH

Acute Diverticulosis of the Cæcum.

LAURIDSEN, J. AND ROSS, F. P.: ARCH. SURG., 64: 320, 1952.

This disease is of uncommon occurrence, only 149 proved instances have been found in the literature. The authors present records of four additional cases. In three a preoperative diagnosis of acute appendicitis was made. The fourth had a previous appendectomy and with tenderness high in the right side led to a preoperative diagnosis of acute cholecystitis. Two patients showed an acutely inflamed diverticulum of the cæcum. Simple excision was performed in both with removal, in one of the rim of normal cæcum to permit closure of the defect with tissue not involved in the inflammatory reaction. In the third case the diverticulum was believed to be a localized tumour and was removed by partial cæcectomy. In the last case the operative diagnosis was made of perforated cæcum, with local inflammatory reaction and a partial cæcectomy was performed.

The authors emphasize the marked similarity of symptoms, signs, physical and laboratory findings between acute cæcal diverticulitis, and acute appendicitis with one significant difference, that nausea is seldom noted in the former disease. The site of the lesion in most instances (78.8%) was at the level of the ileocæcal valve or immediately above or below the level. A fecolith was found in over half the cases. The congenital origin of this disease is probable in most instances.

G. E. LEARMONTH

Idiopathic Spontaneous Segmental Infarction of the Omentum.

HIGGINS, G. A.: ARCH. SURG., 64: 395, 1952.

Only seventeen authenticated cases of this disease have been reported in the surgical literature, in which spontaneous infarction occurred without evidence of other contributory intraperitoneal, pathological changes. The author records an additional instance.

Preoperative diagnosis is difficult and is most often mistaken for an acute appendicitis and occasionally for a peptic ulcer. The one constant clinical picture is of abdominal pain and tenderness usually in the right lower quadrant, but without the degree of rigidity to be expected in acute appendicitis. There was an uneventful recovery in each of the recorded cases, including also the author's patient, when the infarcted segment of omentum was removed. The usual picture seen at operation is that of a firm, red to purplish black mass of hæmorrhagic, necrotic omentum 3 to 5 cm. in diameter and adherent to the anterior peritoneum. The possible etiology or mechanism by which spontaneous omental infarction may occur has not been definitely defined.

G. E. LEARMONTH

Congenital and Infantile Aphasia.

VAN GELDER, D. W., KENNEDY, L. AND LAQUAITE, J.: PEDIATRICS, 9: 48, 1952.

The syndrome of aphasia in childhood should be borne in mind by all those working with children. It is a tragedy not to diagnose a child with infantile aphasia and label the child as mentally defective; such a child readily becomes socially inadequate for lack of specialized educational facilities. Proper speech training and education permits these children to become useful and active members of society. Many 4 or 5 year old children with delayed speech may be of one of the many degrees of infantile aphasia; these children begin to talk "under their own power". Careful histories reveal common etiologic factors productive of cerebral lesions, and speech therapy might prove to be effective. Without proper therapy the child's speech may be garbled. Earlier recognition and proper guidance for milder types of aphasia will depend on better definition of the pattern of the rate of speech development.

J. A. STEWART DORRANCE

Alcohol.

BOWMAN, K. M.: AM. J. PSYCH., 108: 529, 1952.

In the treatment of alcoholism no very important new methods or therapies have been evolved. A series of articles on Antabuse seem to confirm the fact that under proper conditions and in selected cases there is a definite place for Antabuse in the treatment of chronic alcoholism. The necessity of extreme care in selecting patients is emphasized; dangerous reactions do occur and several deaths have been reported. The patient's co-operation is highly essential. There seems to be general agreement that individualized psychotherapy is a necessary part of this treatment. Psychotic phenomena may follow as sequelæ to the use of the drug. There is a danger in treating cases with preexisting brain damage or liver dysfunction that is barely compensated.

Tolserol seems to have value in confirmed alcoholics by producing calmness and reduction of fear and tremulousness. Leucotomy is of little value, as 93% of 179 lobotomized patients did not change their previous drinking habits when returned to the community.

F. W. HANLEY

A Critical Evaluation of the Antithrombin Test for Venous Thrombosis.

MCLACHLIN, J., PAUL, R. AND PATERSON, J. C.: SURG., GYNEC. AND OBST., 94: 297, 1952.

The development of a simple laboratory test for the blood antithrombin level has led to a claim that dangerously low antithrombin levels can be detected and pulmonary embolism prevented. Experience has shown, however, that embolism often occurs with clinically silent thrombi in the large veins of the thigh and pelvis. The authors have made determinations of the blood antithrombin of many patients during life and compared these results with autopsy dissections of those who die. No correlation was obtained. Venous thrombi were found in the legs of individuals who had a "safe" antithrombin level during life. The test is not recommended for the prediction of venous thrombosis. BURNS PLEWES

PÆDIATRICS

Variations in Blood Pressure in Hospitalized Children.

CLAYTON, G. W. AND HUGHES, J. G.: J. PEDIAT., 40: 462, 1952.

Blood pressure is known to be affected by coughing, respiration, straining, emotion, eating, and other factors, however, this is the first study of the changes occurring in blood pressure from the determination first made in the admitting room to the ward of a hospital, in children. The 92 patients were admitted for elective surgery or mild infection. Their ages ranged from 2 to 12 years, and there were 729 arm blood pressure determinations. In 36 cases initial pressure determinations were made in the admitting room and at regular intervals thereafter while the children were on the hospital wards. On each patient the following factors were evaluated: 1 diagnosis and degree of illness; 2 environment, admitting room or

ward, presence of parents, procedures, etc.; 4 crying or not; 5 pulse rate; and 6 time of day. Three patterns of response of blood pressure were noted in respect to initial pressure adjustments. The most common was for the pressure to be higher in the admitting room and then to become progressively lower on the ward. The second most common response was for the pressure to rise on the ward in the initial hours after admission and then to become progressively lower. The least frequent response was one of little fluctuation. The factors which influence blood pressure the most were: emotional tension incident to admission to a strange surrounding of a hospital, and the anticipation of separation from parents. Pressure differences of 30 to 40 mm. Hg. were noted between initial elevation and stabilized levels. Other factors were physical activity and/or recreation; painful procedures and postoperative states; visits of parents; awakening; and anger; these variations were not as great as the initial elevations. More stable blood pressures were noted in acutely ill children. J. A. STEWART DORRANCE

Drugs that Produce Deviations in Mood, Including Anxiety, Presumably without Impairing Capacities for Orientation or at Least Secondarily to Changes in Mood.

CLEGHORN, R. A.: AM. J. PSYCH., 108: 568, 1952.

The observation that ACTH or cortisone can produce euphoria in patients has created an interest in agents capable of producing a deviation in mood. The author reviews a number of these. Caffeine is said to facilitate thought and allay fatigue, the mode of action apparently being a direct stimulation of the synapse. Aminophylline, in doses of 0.5 gram, is capable of producing extreme anxiety accompanied by signs of syncope. Amphetamine, which has a stimulating effect, reduces cerebral blood flow and metabolic rate and increases the oxygen consumption of the brain tissue under certain circumstances. Cortisone is discussed in relation to two cases with Addison's disease which received the drug. In the first case cortisone was followed by an increase in tension and agitation, as well as by an exacerbation of psychotic features. In the second case an increase in the sense of well being, of energy and of sex feeling appeared after cortisone was begun. Pregnenolone has been claimed to facilitate psychomotor performance and to possess antifatigue action. The author concludes with the note that depression rather than euphoria may follow the use of cortisone and ACTH, and that the same is true of simpler agents like amphetamine.

F. W. HANLEY

Diarrhœa of the Newborn.

SCOTT, R. B., BROWN, G. P. AND KESSLER, A. D.: AM. J. DIS. CHILD., 83: 192, 1952.

The authors present a report on 53 cases of epidemic diarrhœa in a newborn nursery unit. The incubation period in this outbreak was 4.6 days, while the age at onset of disease was 2 to 14 days. Diarrhœa was the first symptom; the stools were frequent, explosive, watery, yellow or yellow-green, and contained mucus. Often the temperature was subnormal, there was dehydration, apathy, weak swallowing reflex, anorexia, and vomiting. The severely dehydrated infants were hyperpnœic and this was correlated with chemical evidence of acidosis. Convulsions occurred in 4 cases, indicating a poor prognosis. Head jerking or abrupt extension of the head synchronous with respiration was usually a terminal phenomenon. Post mortem examination of 11 cases revealed a gastroenteritis without ulcerations, accompanied by pulmonary œdema of pneumonitis. Hæmoglobin values were high due to dehydration and neonatal plethora, plasma protein was low as was the carbon dioxide-combining power, and all blood cultures were sterile. Stool cultures revealed *Es. coli, M. pyogenes var. albus, B. subtilis,* and *S. fæcalis.* The clinical course lasted 6 to 30 days, averaging about 2 weeks. Treatment was supportive and symptomatic with isolation, sulfonamides, penicillin, and infusions of blood, plasma, and electrolytes. Streptomycin had no effect on the number and character of the stools, although it caused sterile stool cultures, but 4 of the 11 infants treated with streptomycin died.

J. A. STEWART DORRANCE

Coagulation Studies in the Newborn Infant.

GROSSMAN, B. J., HEYN, R. M. AND RAZENFELD, I. H.: PEDIATRICS, 9: 182, 1952.

The authors state that this is the first report of a correlation of the multiple techniques which are involved in the study of the coagulation of whole blood. Twenty-one infants were studied serially on the 1st, 3rd and 5th days of life, none of whom had any clinical evidence of bleeding, nor had they or their mothers received vitamin K. The whole blood clotting time, within the first 6 hours of life ranged from 7 to 38 minutes, mean, 14 minutes. On the third day of life the range was 6 to 38 minutes, mean 16 minutes. Protamine titration was increased in comparison to normal adult values of 6 to 26 minutes within the first 6 hours. On the third day there was a slight increase, while all titrations were normal on the fifth day. The prothrombin concentration was high on the first day, low on the third day, and high on the fifth day. Platelet values were all within normal values on all days tested. Heparin sensitivity curves were unchanged when repeated daily for the first 7 days of life.

The problems encountered in obtaining whole blood from the newborn infant are greater than those encountered in drawing blood from older children or adults. These difficulties are: (1) obtaining a clean puncture void of tissue juice; (2) maintenance of a free flow of blood from the small venules; (3) avoiding the entrance of air bubbles into the syringe while withdrawing the blood; and (4) obtaining the necessary amount of blood within a reasonable length of time (1 minute).

J. A. STEWART DORRANCE

Hæmodynamic Alterations in Acute Myocardial Infarction.

FREIS, E. D., SCHNAPER, H. W., JOHNSON, R. L. AND SCHREINER, G. E.: J. CLIN. INVESTIGATION, 31: 131, 1952.

The authors report on studies made on 11 patients with acute myocardial infarction, 7 with hypertension, and 7 normal medical students. All determinations were carried out with a minimal disturbance to the patients. The hæmodynamic changes varied with the clinical status of the patients. Mean femoral artery pressures were 63, 84, 93 mm. Hg. for the controls, 104, 145, 189 mm. Hg. for the hypertensive group, and 68 to 120 for those with myocardial infarction. Cardiac output was high in the control group, the mean cardiac index (M.C.I.) was 4.0, in the hypertensive group the M.C.I. was 3.2, and in those with myocardial infarction the M.C.I. was 1.8 to 3.4, depending upon the severity of their clinical states. The heart rate increased with the severity of the infarction. Stroke volume was 118 ml. for the control group, 73 ml. in the hypertensive group, and 21 to 76 ml. in the infarction group. The mean total peripheral resistance in the hypertensive group was twice as great as that of the normal group, and in the infarction group it was slightly elevated or more than twice as great.

The initial change after an extensive myocardial infarction is a reduction of the stroke volume, this is followed by a compensatory mechanism of generalized, intense vaso- and veno- constriction, with a tachycardia, similar to a shock-like state. Fluid retention may follow and may

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lead to congestive heart failure. The aortic pressure is increased and thus maintains the coronary circulation, although this is an addition to the work load of an already damaged heart.

In the shock-like state of acute myocardial infarction there is hypovolæmic shock and hypervolæmic heart failure—the patient shows this by pallor, hypotension, thready pulse, high venous pressure, pulmonary œdema, dyspnœa, and orthopnœa. These are part of the compensatory mechanisms which tides the patient over the acute phase of an emergency of a weakened myocardium.

J. A. STEWART DORRANCE

Pre- and Post-operative Growth Patterns in Congenital Heart Disease as Shown by the Wetzel Grid.

RICHARDS, M. R.: PEDIATRICS, 9: 77, 1952.

Patent ductus arteriosus causes retardation of growth by depriving the peripheral areas of the body with adequate oxygen, since 45 to 70% of the blood is shunted from the aorta into the pulmonary artery and lungs. In cyanotic heart disease growth is stunted due to tissue anoxia due to a low oxygen saturation of the arterial blood. The degree of retardation is proportional to the degree of clinical cyanosis and growth retardation in the tetralogy of Fallot is less severe than in other lesions producing comparable cyanosis. The author reports on the results of 9 cases of patent ductus arteriosus, and 7 cases of tetralogy of Fallot. At the time of operation 5 of the patent ductus arteriosus cases were below the 67th percentile of the Wetzel grid; of these, 2 improved past the 67th percentile. No correlation could be made between the size of the ductus and the degree of growth retardation or of postoperative growth acceleration. At the time of operation 4 of the cases of tetralogy of Fallot were below the 67th percentile of the Wetzel grid and only 2 were stunted. In 2 cases there was a moderate improvement in the speed of growth following surgery, and in 5 the growth progress continued at the preoperation rate or deceleration occurred. The poor growth response following surgery in these cases may be due to the fact that although surgery relieves the anoxæmia, it causes an arteriovenous shunt in the form of an artificial ductus, and thus growth retardation continues through a different mechanism after operation. Also this may be due to the result of the greatly increased activity of the patients after surgery, but many observers feel that growth would eventually "catch up" with normal values.

J. A. STEWART DORRANCE

DERMATOLOGY

Treatment of Alopecia Areata, Totalis and Universalis with Cortisone Acetate.

DILLABA, C. J. AND ROTHMAN, S.: J. INVEST. DERM., 18: 5, 1952.

One of the authors collaborated in a statistical study in 1950 of endocrine influences in alopecia areata, in which it was, *inter alia*, observed that when the first attack of alopecia areata was pre-pubertal the probability of later alopecia universalis was greater. In the 4 cases reported in the present paper, total or almost total alopecia was present. In 3 cases the alopecia had been present for periods varying from 7 to 10 years. New hair appeared in these cases uniformly after 4 weeks' treatment with oral cortisone acetate. The dose was 100 mgm. daily. The fourth case was similar to the others with the exception that he began to lose his scalp hair at the age of 8. At the time of writing 3 cases were still under treatment. Later reports of what happened when the steroid was stopped, or what maintenance dosage was required to keep the hair in place will be awaited with interest.

D. E. H. CLEVELAND

First Report of the Presence of a Dermatitis-Producing Marine Larval Schistosome in Hawaii.

CHU, G. W. T. C.: SCIENCE, 115: 151, 1952.

This brief report is of interest on account of the increasing popularity of Hawaii as a vacation-resort quickly accessible by air from the Canadian Pacific Coast. A similar eruption has also been reported lately from Florida, as well as Hawaii, both attributed to an unknown agent. The eruption consists of pruriginous erythematous maculo-papules, following salt water bathing. Chu suggests that it is due to larval schistosomes from various species of migratory and resident sea-gulls, for droppings containing adult schistosomes produce washings containing them, which drain into tidal pools and estuaries, and indicate the possibility that these birds are definitive hosts. Patch-tests with these cercaria on human volunteers have produced itching, in some cases papules, in some cases maculo-papules, in the majority of a small group tested.

D. E. H. CLEVELAND

ANÆSTHESIA

Anæsthesia and the Cardiac Patient.

HAYWARD, G. H.: ANÆSTHESIA, 7: 67, 1952.

In general, patients with heart disease tolerate major surgery and anæsthesia well. The operative mortality is very little higher than that in patients with a normal heart. There are two factors which may seriously embarrass the cardiac patients during operation. These are *anoxia* and *hypotension*. The first is usually under the control of the anæsthetist and should occur but rarely in significant degree. However, with newer techniques of anæsthesia "controlled hypotension" produced by the methonium compounds or by arteriotomy, presents a serious danger to patients suffering from unsuspected coronary disease. Some of these patients have died while undergoing operations of no particular severity but in which the controlled hypotension technique has been employed. The author suspects that these deaths are due to coronary infarction and that this will become more frequent if the technique is used routinely without discrimination.

Patients with congestive heart failure should have anæsthesia and surgery postponed, if possible, until the failure has been treated. However if the condition is urgent and emergency surgery must be done, there being no time for adequate preoperative treatment, the operative risk is increased, but even then it is often surprising how well these patients do. There will usually be time for rapid digitalization with either 1 mgm. of digoxin intravenously or 1.5 to 2 mgm. in a single oral dose.

Auricular fibrillation does not add to the difficulties of the anæsthetist provided the ventricular rate is well controlled with digitalis. Abnormalities such as ectopic beats occurring during the anæsthesia are of no significance and should not give rise to concern.

F. ARTHUR H. WILKINSON

The Absorption, Distribution, Excretion, and Short-Term Toxicity of Isonicotinic Acid Hydrazide (Nydrazid) in Man.

ELMENDORF, D. F. JR., CAWTHORN, W. U. MUSCHENHEIM, C. AND MCDERMOTT, W.: AM. REV. TUBERC., 65: 429, 1952.

The patients chosen for this study were all adults with pulmonary tuberculosis, classified as far advanced or moderately advanced. With a few exceptions, they had had long courses of streptomycin and para-aminosalicylic acid and were discharging tubercle bacilli which were insusceptible to streptomycin *in vitro*. Isonicotinic acid

hydrazide was given orally in a total daily dose of 3 mgm. per kilogram divided into two doses at approximately twelve-hour intervals, for periods of four to sixteen weeks without evidence of serious toxic reactions. The subjects remained in bed throughout the period of the investigation and were observed daily for any evidences of drug toxicity; particular attention was paid to the detection of any evidences of excitation of the nervous system.

Total leukocyte and differential counts were performed twice weekly; hæmatocrit, erythrocyte sedimentation rate, erythrocyte counts and hæmoglobin concentrations were determined weekly; at two-weekly intervals the CO_2 combining power, chloride concentrations, blood sugar (fasting), calcium and phosphorus concentrations, total protein, and albumin-globulin ratios were determined. Renal function was estimated every two weeks by urea clearance and blood urea nitrogen determinations. Hepatic function was estimated every two weeks by bromsulfonphthalein retention, bilirubin concentration, thymol turbidity, and alkaline phosphatase activity. Cardiac function was studied by pulse and blood pressure charts and electrocardiography.

Specimens of pleural fluid, cerebrospinal fluid, sputum, saliva and fæces were examined.

The anti-tuberculous activity of plasma obtained from patients at various intervals after ingestion of isonicotinic acid hydrazide was tested *in vitro* against M. tuberculosis. The rapid attainment of high isonicotinic acid hydrazide in the cerebrospinal fluid in the presence of tuberculous meningitis was ascertained following oral administration. The findings were considered to be sufficiently promising to warrant extension of the therapeutic studies to meningeal and miliary tuberculosis the results of which will be published.

Generally there was a substantial gain in appetite and body weight, reduction in fever, and favorable roentgenographic changes in certain of the patients treated. The authors conclude that it is not possible from their observations to make any positive statements concerning the effectiveness of isonicotinic acid hydrazide in the treatment of tuberculosis in human subjects. However, they were satisfied that from the standpoint of distribution, maintenance of antimicrobial activity, and short-term tolerance, isonicotinic acid hydrazide displays in man properties which are highly desirable in an anti-tuberculous drug.

The dosages used in this study gave rise to a drug concentration well below that present in dogs which were found to show toxic reactions, but sufficiently high in plasma and cerebrospinal fluid of the patients treated to be active in terms of antituberculous activity *in vitro*. The authors believe that probably instances of toxicity will be observed when the drug is administered at more frequent intervals, in a larger daily dosage, or for longer periods of time, but they feel that the use of such large dosages is not advisable save in very special circumstances and with close observation of the patients.

B. L. FRANK

THERAPEUTICS

Recent Advances in the Drug Therapy of Peptic Ulcer.

BERK, J. E.: AM. J. MED. SCIENCES, 221: 567, 1951.

This review summarizes the current information on drugs used in the treatment of peptic ulcer. It deals with banthine, hexamethonium compounds, tetraethylammonium compounds, dibutoline, ACTH and cortisone, enterogastrone, urogastrone, sodium carboxymethylcellulose, protein hydrolysates, anion exchange resins and drug combinations such as a combination of sodium carboxymethylcellulose and magnesium oxide; a combination of aluminum hydroxide, magnesium trisilicate, and gastric mucin; a combination of gastric mucin and a polyamine anion exchange resin; and a combination of water-soluble derivatives of chlorophyll, aluminum hydroxide, and magnesium trisilicate in a powdered okra base.

It is apparent from this review that a specific cure has not been found as yet. In recent years attention has turned from antacids to compounds which are antisecretory, or which may, through some, as yet, poorly understood mechanisms, enhance the "natural resistance" of the gastroduodenal mucosa.

The author comments on how little attention has been given to the action of drugs on the contents of the duodenal bulb. In the presence of an active duodenal ulcer there is a definite derangement of certain duodenal mechanisms, which may be open to correction by drugs; this would present still another avenue of approach worthy of investigation.

It is inadequately realized that the measure of effectiveness of a drug in the treatment of peptic ulcer is not alone the relief of symptoms. An appreciable number of patients with uncomplicated gastroduodenal ulcers respond with subjective improvement to a variety of placebos. In fact, the administration of such placebos may, in some cases, be accompanied by objective alterations in the motor and secretory activity of the stomach and duodenum. Many of the drugs recently used in the treatment of peptic ulcer bring about subjective improvement which, in terms of percentages, is no greater than, and is often less than, that obtained with conventional measures of ulcer management. Too frequently it is omitted to run control groups with placebos in order to evaluate the therapeutic effectiveness of a new medicinal agent. The appraisal of gastroscopic and x-ray appearance of an ulcer during treatment is also too often neglected. Follow-up observations are not sufficiently long pursued and under such circumstances the value of a drug in diminishing recurrence rate cannot be properly evaluated.

The influence of suggestion, and enthusiasm on the part of the patient and the physician, make the evaluation of drugs in the treatment of peptic ulcer particularly difficult. Awareness of these limitations and adoption of an attitude of vigilant and critical skepticism should therefore do much to clarify the rôle of drugs in this disease.

B. L. FRANK

Results of Non-surgical Treatment of Hyperthyroidism.

MCCULLAGH, E. P.: *Cleveland Clin. Quart.*, 18: 102, 1951.

The choice of the management of hyperthyroidism is influenced by the characteristics of the goitre. Hyperthyroidism may arise in one of three types of goitre: (1) The diffuse goitre of Graves' disease. (2) Multinodular or so-called adenomatous goitre. (3) Discrete adenoma.

Three types of therapy are available: (1) Surgery. (2) Antithyroid drugs. (3) Radioactive iodine.

Surgery has a mortality rate which is now in the neighbourhood of 0.1%. Preoperative treatment may succeed in abolishing hyperthyroidism before operation. Surgery is the treatment of choice in all patients in whom there is a suspicion of carcinoma, in all who have discrete adenoma of the thyroid, and in those in whom it is desirable to remove a large mass of nodular thyroid for cosmetic reasons or because of intrathoracic extension with pressure symptoms. The disadvantages of surgery are the mortality rate, though small, a definite recurrence rate, and the possibility of complications such as hypothyroidism, parathyroid tetany and vocal cord paralysis.

The antithyroid drugs, such as propyl and methyl thiouracil have the advantages of no discomfort, no hospitalization, and no lasting complications. In cases in which they effect lasting remissions, the thyroid gland itself remains intact. The disadvantage of these drugs is that they bring the disorder under control more slowly than surgery. The mortality rate is low, amounting to one patient in approximately 5,000 cases treated. Toxic symptoms, however, may prevent the use of these drugs.

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The recurrence rate in this series was 23% in cases of Graves' disease, and more than 65% in adenomatous goitre.

Radioactive iodine has advantages in the treatment of Graves' disease because of its great safety and the ease of treatment. The goitre disappears in most cases and there is a high rate of lasting remissions. No complications are to be expected with the exception of hypothyroidism. Its over-all cost is less than that for other forms of treatment. In nodular goitre the disadvantage of radioactive iodine is that it does not remove the goitre; it is, however, indicated in this condition when surgery is not possible.

Radioactive iodine used today for the treatment of hyperthyroidism is I^{131}, which has a half-life of eight days. Its concentration in the thyroid is 10,000 times that found elsewhere in the body. It chiefly emits beta rays which penetrate the tissues to a depth of only about 2 mm.; thus damage to other tissues does not occur. Radioactive iodine can be given in a drink of water, it is tasteless, and it is quickly absorbed from the gastrointestinal tract. One mc. is contained in 2 c.c. of water. After arrival it is handled with special equipment at a distance of three-quarters of a metre from the operator, and handed to the patient in a paper cup.

As an adjunct a high calorie diet, sedatives and, when necessary, cardiac therapy are prescribed; treatment may be followed with iodine or propyl thiouracil. The results of radioactive iodine therapy are excellent. B. L. FRANK

Management of the Complaining Patient—A Method of Intensive Psychotherapy.

SUTHERLAND, R. L.: AM. PRACTITIONER, 2: 792, 1951.

This article deals with the problem of what to do with patients who continue to demand further treatment and reassurance after apparently adequate medical therapy has been given. The care of such patients may constitute the most frustating part of a physician's life.

The author's method in dealing with such cases consists of a direct, serious expression of interest in how the patient feels, especially in regard to his principal complaint. Clues are taken from what the patient has said to bring forth areas of fear, misgivings, dissatisfaction with treatment and resentment of the interviewer or other personnel. Then the therapist tries to say for the patient what the patient has in mind, but has so far only hinted at. The fear of cancer or of heart disease is so prevalent today that it can be presumed to be present at the onset of almost any unforeseen symptom. Dread of insanity is common. Anticipation of chronic invalidism and inability to care for oneself lurks behind almost any serious injury or prolonged complaint. The goal is to bring the fears into the light of frank discussion.

To say, "When we have been putting you through all these examinations, you can't fail to be worried about your heart", may relieve apprehension; and fear of death will have much less a lonely, terrible quality after the physician has said, "Since we can't prove that you are free of cancer, you must feel you don't have long to live. What do you look forward to in the next few months?"

When the approach is effective, the author claims that it stops the "shopping around" from doctor to doctor.

The article should be read in full to appreciate fully its apparently contradictory approach to a difficult problem. B. L. FRANK

The Present Status of Vitamin D Treatment in Lupus Vulgaris.

BRAUN, W.: MED. KLIN., 47: 219, 1952.

The action of vitamin D_2 in tuberculosis of the skin is discussed, as there are not enough published observations available yet on the action of vitamin D_3 in this condition. The original procedure of Charpy, who used very high initial dosages, has been abandoned on account of the frequent occurrence of of undesirable side effects, and has been replaced by the administration of 15 mgm. of vitamin D_2 per week, *i.e.* 2,000 I.U. D_3 per kg. of body weight daily, by mouth, for four to five days with an ensuing interval of two to three days, (1 mgm. vitamin D_2 equals 400,000 I.U.) It was thought that patients tolerated the drug better like this than with daily administration throughout the week.

In 120 patients suffering from lupus, whom the author treated, 60% remained symptom free, 35% were improved, though still showed evidence of residual foci, and 5% were failures. However, only in a few years' time will it be possible to give the final answer to the question of a permanent cure with vitamin D.

The general impression is that a prolonged period of treatment, that is to say more than one year, holds a better prospect of permanent cure than shorter periods of time. It is possible that relapses are due to lesions of microscopic dimensions which remain, when macroscopically there is no further evidence of the disease. In spite of these reservations, it is thought that vitamin D at the present time, constitutes the treatment of choice for lupus vulgaris, although special attention must be paid to the possibility of toxic effects; fatal cases of vitamin D_2 poisoning have occurred. B. L. FRANK

PSYCHIATRY

General Clinical Psychiatry, Psychosomatic Medicine, Psychotherapy and Group Therapy.

HOCH, P. H. AND LEWIS, N. D. C.: AM. J. PSYCH., 108: 515, 1952.

In reviewing the year's progress in the above fields, the authors have limited themselves to a few papers, presumably because they have judged them of most significance.

The authors refer first to Gottlieb and Huston's follow-up study to compare the results of treatment of schizophrenia with brief psychotherapy, insulin coma and electroshock. No superiority for any of the three methods was found after one to four years' follow-up periods. It was more important to determine if the patient had been sick six months or less prior to treatment, and to determine the form of treatment to be applied. If the patients had been sick longer, the outcome was less favourable. Insulin coma and electroshock favoured the establishment of a good psychotherapeutic relationship, but had no influence on the ultimate outcome. It would appear that in early cases that have a tendency to recover, different therapeutic methods are able to foster and support such tendencies. As yet no method is available that would influence, to any reliable extent, those schizophrenic patients whose recovery tendency is low.

Carscallen *et al.* investigated, clinically and psychologically, pre-frontal lobotomy. They concluded that lobotomy mainly involves a diminution in the intensity of the symptoms and consequent improvement in the behaviour of schizophrenic patients. The basic structure does not appear to be greatly altered. The authors indicate that whereas prognostic criteria such as age or reaction to previous treatment—electroshock and insulin—are of little value, the length of the psychosis does appear significantly. Illnesses of five years' duration react less favourably. This applies mainly to schizophrenic patients, since the duration of the illness is apparently of lesser importance in cases of depression and psychoneurosis.

Gibbs is quoted as finding that psychiatric disorders are more than three times as common in cases with focal seizure activity in the temporal lobe than in cases with the focus in any other cortical area. He believes that the temporal lobe has a hierarchy of neuronal functions. The middle and posterior regions of the temporal cortex are chiefly concerned with sensation and perception, while the anterior temporal region is concerned with evaluation and judgment. The reviewers comment that

Gibb's work brings up again the question of the localization of certain intellectual and emotional functions in specific cortical areas.

Reference is made to Carl Binger's comprehensive review of the so-called psychogenic influences in essential hypertension. More must be known of the constitutional, physiological, psychological, and pathological elements in this disease or group of diseases. The fact that acute emotional excitement may result in transitory elevations of blood pressure should not be used as a basis for the inference that long-lasting emotional states or conflictive situations can act as precipitants to chronic vasomotor constriction. Binger does state, however, that there is evidence for believing that psychotherapy offers some patients suffering from essential hypertension the best chance for help. F. W. HANLEY

The Differential Diagnosis of Malignant Disease of the Peritoneum.

DANIEL, O.: BRIT. J. SURG., 39: 147, 1951.

Many different lesions may simulate carcinomatosis peritonei. Secondary carcinoma is the commonest of the malignant diseases, but histological examination should always be performed because age, ascites, enlargement of omentum or lymph glands are of little diagostic value. Among the diseases to be differentiated from malignant disease of the peritoneum are tuberculosis (peritonitis and miliary) encapsulated foreign bodies (talc, former ruptured ulcer) lesions due to prolonged sepsis or mechanical irritation (salpingitis, hernia), fat necrosis (trauma, pancreatitis), metazoan parasites (hydatid disease) polyarteritis nodosa, gas cysts, enterogenous cysts, splenosis, lesions due to other bacteria (*B. abortus*), and ruptured mucocele. The polarizing microscope and mucicarmine stains are useful when histological diagnoses are difficult. BURNS PLEWES

A Study of Workmen's Compensation and Heart Disease in New York City.

GOLDWATER, L. J. AND WEISS, N. M.: NEW YORK STATE J. MED., 51: 2754, 1951.

With the increase in the number of cardiac patients in the population, the employer of today is faced with the pressing problem of their employability. His attitude toward engaging such persons is determined by several factors, not the least being the manner in which workmen's compensation claims for cardiac disabilities are handled and adjudicated. Information in connection with some of the prevailing practices and policies is desirable and in this article the authors present the findings in an investigation carried out in New York City where the situation is now a matter of grave concern to employers, employees and insurance carriers.

The New York investigation consisted of two major parts. In the first—a statistical analysis of the workmen's compensation awards in cases of heart disease in New York City and New York State for the years 1947-1949—it was found that while the claims represent a relatively small group numerically, the cost per case is so great that heart cases may account for nearly 4% of all compensation costs annually.

The second part of the study gives a review of the records of a number of actual cases in which claims for workmen's compensation were filed because of disability or death due to heart disease. Information from 104 case records was analyzed; the findings include the following:

About 90% of all compensated cases are individuals past forty years of age suffering from the degenerative types of heart disease. In about 80% of the series, the onset of symptoms was stated to have occurred while the individual was at work. In about 15% there was an interval of more than two weeks between an alleged "occupational episode" and the onset of symptoms. In two cases the interval was more than two years. Medical testimony appears to play little or no part in the adjudication of cases.

Seventeen per cent of the cases studied were accepted by the insurance carrier as compensable before a hearing was held. Among the controverted cases, claims were allowed in 75% of the cases in which the onset occurred while the claimant was at work as compared with 33% when the claimant was not at work. Reliable data on "unusual effort" could not be obtained from the records. Although more than 40% of the cases in this series had knowledge of pre-existing heart disease, the Second Injury Law was invoked in only one case.

That occupational activities may play a part either in initiating or aggravating the disability, at least in some cases of cardiac disability, is the opinion held by most medical authorities. The authors suggest that fixed criteria for the compensability of heart disease be established. Among other things these criteria might include: consideration of age and sex, previous medical history, past and present occupational history, circumstances surrounding the onset of the disability, diagnostic features, time intervals, and the course of the illness.

MARGARET H. WILTON

INDUSTRIAL MEDICINE

The World Health Organization and Occupational Health.

FORSSMAN, S.: BRIT. J. INDUST. MED., 8: 206, 1951.

That occupational health is part of the responsibility of the World Health Organization and will be developed in co-operation with the International Labour Office, as part of its program, is indicated by this article. The author first presents a general survey of the work of the WHO and then shows how occupational health problems fit into its program. WHO includes a headquarters in Geneva, with a permanent staff, with a permanent staff, an executive board of 18 members who meet twice a year to follow up the work of headquarters, and an assembly which meets annually to decide on general principles. For field activity, there are six regional offices throughout the world. The work may be divided into two main parts (a) collecting and compiling of information which is distributed over the world by various means, and (b) field and other activities to solve theoretical and practical health problems. Almost every section at headquarters has available a group of experts who can give necessary information on special subjects.

With expanding activity, new subjects have been supported and in 1950 a section on social and occupational health was established within the Division of the Organization of Public Health Services. The author reviews briefly the earlier international work on occupational health—that of the permanent International Commission on Industrial Medicine founded in 1905, and that of the International Labour Office since 1920. As the work by WHO must be closely co-ordinated with the activity of ILO, a joint ILO-WHO Experts Committee for Occupational Health was set up and met for the first time in September, 1950. Much time was devoted to a discussion of the terminology and definition of occupational health; based on this the field of occupational health will now include all the workers' health problems in relation to their working conditions or their employment. This will take in among others, prevention of tuberculosis and other airborne infections, the promotion of mental health and prevention of neurosis, rehabilitation of workers, and physical examinations.

Reference is made to a mission of the WHO in 1950 when following a request they sent an English psychiatrist to study industrial conditions in Finland, Sweden

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and Norway. As a result, a short course in human relations in industry has this year been arranged in England for the benefit of Scandinavian countries. Future activities may include organization of seminars and issuing of monographs on important problems, co-ordinating of information service by ILO and WHO, and consideration of various practical problems within occupational health. The lack of trained personnel has been serious. To overcome this the WHO now offers Fellowships to different countries.

MARGARET H. WILTON

FORTHCOMING MEETINGS

CANADA

PRINCE EDWARD ISLAND DIVISION C. M. A., Annual Meeting, Charlottetown, P.E.I., August 29-30, 1952.

NEWFOUNDLAND DIVISION, C.M.A., Annual Meeting, St. John's, Newfoundland, September 1-3, 1952.

NOVA SCOTIA DIVISION, C.M.A., Annual Meeting, Lakeside Inn, Yarmouth, N.S., (Dr. D. F. Macdonald, Yarmouth, N.S.) September 3-6, 1952.

NEW BRUNSWICK DIVISION, C.M.A., Annual Meeting, St. Andrew's, N.B., September 7-10, 1952.

BRITISH COLUMBIA DIVISION, C.M.A., Annual Meeting, Victoria, B.C., September 16-19, 1952.

ALBERTA DIVISION, C.M.A., Annual Meeting, The Civic Centre, Lethbridge, Alta., September 24-27, 1952.

SASKATCHEWAN DIVISION, C.M.A., Annual Meeting, Regina, Saskatchewan, September 30, October 1-3, 1952.

MANITOBA DIVISION, C.M.A., Annual Meeting, Winnipeg, Manitoba, October 7-10, 1952.

UNITED STATES

AMERICAN CONGRESS OF PHYSICAL MEDICINE, 30th Annual Scientific and Clinical Session, The Roosevelt Hotel, New York, N.Y. (Dr. Walter J. Zeiter, Executive Director, Am. Congress of Physical Medicine, 30 N. Michigan Ave., Chicago 2, Ill.) August 25-29, 1952.

INTERNATIONAL CONGRESS OF UROLOGY, The Waldorf-Astoria, New York, N.Y. (Dr. John A. Taylor, Secretary-General, 2 East 54th Street, New York) September 15-18, 1952.

CONGRESS OF ANÆSTHETISTS, THE INTERNATIONAL ANÆSTHESIA RESEARCH SOCIETY AND THE INTERNATIONAL COLLEGE OF ANÆSTHETISTS, 27th Congress, Cavalier Hotel, Virginia Beach, Va. (Laurette McMechan, Executive Secretary, 318 Hotel Westlake, Rocky River, Ohio.) September 22-25, 1952.

THE NATIONAL GASTROENTEROLOGICAL ASSOCIATION, 17th Annual Convention, New York City, N.Y. (Dr. Roy Upham, Secretary-General, 1819 Broadway, New York 23, N.Y.) October 20-22, 1952.

CONGRESS OF NEUROLOGICAL SURGEONS, 2nd Annual Meeting, Palmer House, Chicago, Ill. (Dr. Bland W. Cannon, Secretary, Congress of Neurological Surgeons, 1092 Madison Ave., Memphis, Tenn.) November 6-8, 1952.

OTHER COUNTRIES

FIRST INTERNATIONAL CONGRESS OF DIETETICS, The Royal Tropical Institute, Amsterdam, Netherlands (Miss Diane J. Ten Haaf, General Secretary Executive Committee, 13 Pomonaplein, The Hague, Netherlands.) July 7-11, 1952.

CONGRESS ON DIABETES MELLITUS, The International Diabetes Federation, Leyden, Netherlands. (Dr. F. Gerritzen, 33 Prinsegracht, The Hague, Netherlands.) July 7-12, 1952.

BRITISH CONGRESS OF OBSTETRICS AND GYNÆCOLOGY, 13th Congress, Ripley Smith Hall, University of Leeds, Leeds, England (Dr. B. Jeaffreson, The Hospital for Women, Coventry Place, Leeds, Yorkshire.) July 8-11, 1952.

COMMONWEALTH AND EMPIRE HEALTH AND TUBERCULOSIS CONFERENCE, 3rd Conference, Central Hall, London, England. (Secretary General, National Association for the Prevention of Tuberculosis, Tavistock House North, Tavistock Square, London, W.C.1) July 8-13, 1952.

INTERNATIONAL CONGRESS OF PHYSICAL MEDICINE, London, England. (Dr. A. C. Boyle, 45 Lincoln's Inn Fields, London, W.C.2) July 14-19, 1952.

INTERNATIONAL CONGRESS OF DERMATOLOGY, 10th Congress, London, England. (Dr. G. B. Mitchell-Heggs, St. Johns Hospital, Lisle St., Leicester Square, London, W.C.2) July 21-26, 1952.

INTERNATIONAL CONGRESS OF BIOCHEMISTRY, Paris, France. (Prof. Jean Courtois, 4 Avenue de l'Observatoire, Paris 6e, France.) July 21-27, 1952.

INTERNATIONAL UNION AGAINST TUBERCULOSIS, 12th Congress and the International Congress on Diseases of the Chest, 2nd Congress, sponsored by the Council on International Affairs of the American College of Chest Physicians, Rio de Janeiro, Brazil. (Mr. M. Kornfeld, Executive Secretary, American College of Chest Physicians, 112 E. Chestnut St., Chicago 11, Ill.) August 24-30, 1952.

INTERNATIONAL CONGRESS ON NEUROPATHOLOGY, Rome, Italy (Dr. C. M. Fisher, The Montreal General Hospital, 66 Dorchester St. E., Montreal, Que.) September 8-13, 1952.

INTERNATIONAL CONGRESS OF INTERNAL MEDICINE, Friends House, London, N.W.1, England. (Sir Harold Boldero, 12 Pall Mall East, London, S.W.1) September 15-18, 1952.

NEURORADIOLOGIC SYMPOSIUM, Stockholm, Sweden (Docent Ake Lindbom, Serafimerlasarettet, Stockholm, K. Sweden.) September 17-20, 1952.

INTERNATIONAL CONGRESS OF HEMATOLOGY, 4th Congress, Mar del Plata, Argentina. (Dr. Sol Haberman, Secretary-General, 3301 Junius St., Dallas, Texas.) September 21-26, 1952.

INTER-AMERICAN CONGRESS OF PUBLIC HEALTH, Havana, Cuba. (Pan-American Sanitary Bureau, 2001 Connecticut Ave., Washington, D.C.) September 27-October 1, 1952.

WORLD MEDICAL ASSOCIATION, Athens, Greece. (Dr. Louis H. Bauer, Secretary-General, 2 East 103rd St., New York 29, N.Y.) October 12-16, 1952.

INTER-AMERICAN CONGRESS OF RADIOLOGY, 4th Congress, Mexico City, Mexico. (Dr. Guillermo Santin, Secretary, Londres 13, Mexico 6, D.F.) November 2-8, 1952.

NEWS ITEMS

BRITISH COLUMBIA

The Annual Meeting of the Vancouver Medical Association was held on May 6. The incoming President is Dr. E. C. McCoy, who succeeds Dr. J. C. Grimson. Other officers are as follows: Vice-President—Dr. D. S. Munroe. Hon. Secretary—Dr. J. Howard Black. Hon. Treasurer—Dr. Geo. Langley.

At the annual meeting of the National Cancer Institute of Canada, held recently at Quebec. Dr. Ethlyn Trapp of Vancouver was elected to the presidency of the Institute. Dr. Trapp is recognized as one of the foremost authorities on radiology in Canada, especially from the therapeutic standpoint.

The new Pearson Tuberculosis Hospital in Vancouver was opened officially on May 14. It is a large and completely modern hospital for the treatment of active cases of tuberculosis, and will fill a very serious need, as there has been a very great shortage of beds for such cases. It is named in honour of the Hon. George S. Pearson, former Minister of Health for British Columbia, who for many years did such excellent work in this office.

The official opening was made by the Hon. A. D. Turnbull, present Minister of Health and Public Welfare, in the presence of a large audience, which included many men prominent in public life, and in Public Health work. Among these were Dr. W. H. Hatfield, former Director of TB control, under whose régime so many large-scale projects were started and carried to fruition; Dr. G. F. Kincade, his very able successor; Dr. Cedric Northrop, Director of TB control for the State of Washington, with Dr. G. F. Amyot, Deputy Minister of Health, and notable lay visitors, including Archbishop Duke, Bishop Godfrey Gower, and others.

The Hospital has a present capacity of some 264 beds, and can be extended when the need arises.

We understand that tenders will soon be called for the building of the new wing of St. Vincent's Hospital in Vancouver. This hospital, which is under the control of the Order of the Immaculate Conception, while the latest arrival among the major Hospitals of Vancouver, is one of the most active, and is very popular with both the public and the medical profession, whose only grievance is that it is not big enough. The new additions, however, will lessen this objection at least to some extent, and will give the Hospital much-needed space, for surgical theatres, maternity wards, special departments, and so on.

The building of this wing has been approved by the B.C. Government, which pays one-third of the cost, Ottawa contributing also.

At the Convocation of the University of British Columbia, held recently for the granting of degrees, one of the ceremonies which formed a part of the program was the official opening by the Premier of the Province, Hon. Byron Johnson, of the Wesbrook Building. This building, named after Dr. F. F. Wesbrook, the first President of the University, will house preventive medicine, and is one of a series of buildings that will, when they are all built and operating, constitute the permanent housing of the Faculty of Medicine of the University.

Dr. Gordon F. Kincade, Director of TB control in B.C., has left to attend three important Conferences on Tuberculosis and Chest Diseases. The first of these is the meeting of the National Tuberculosis Association in Boston, Mass., where the new TB drug, which has received so much publicity, isonicotinic acid hydrazide, will, it is expected, be discussed.

The other meetings will be the Annual meeting of the American College of Chest Physicians in Chicago, and a meeting of the Canadian Tuberculosis Association at Regina, in June.

Dr. J. B. Fenwick has been appointed assistant medical director of the B.C. Division, Canadian Arthritis and Rheumatism Society. Dr. Fenwick interned in the Vansouver General Hospital before the war, and later did postgraduate work there and at Shaughnessy Hospital. He has been doing special work in London, England, on these diseases.

Dr. James Mather, former medical health officer for Halton County in Ontario, has been named professor and head of the Department of Public Health at the University of B.C., and will assume his position in the latter part of the summer.

A Committee on drug addiction has been formed in Vancouver, to study the question, which is becoming one of the biggest issues in community welfare in British Columbia. It will be headed by Dr. Lawrence E. Ranta, assistant dean of the Medical Faculty of the University of B.C., and will have as members several of the foremost workers in community matters, including Norman MacKenzie, President of the University, and Chief Walter Mulligan, Chief of Police in Vancouver. The Community Chest and Council is sponsoring this Committee.

A Victorian Order of Nurses service is, we are told, to be installed in Nanaimo—where there is a great need for such nursing service. The Vancouver Island Health Unit nursing staff is too busy with other work of an educational and Health nature to carry on bedside nursing, and both the Local Council of Women and the medical profession are behind the move.

MANITOBA

Dr. Aart Schaberg of the University of Manitoba has been awarded a $4,500 medical fellowship by the Canadian Life Insurance Officers' Association. He is one of 12 Canadian scientists to receive such fellowships this year and he will use the money to set up a tissue culture laboratory at the University to study cellular growth and metabolism. Dr. Schaberg received his M.D. degree from the University of Leiden, Holland, in 1946.

The first sod was turned on April 25 for the new building of Manitoba Medical Service on Osborne Street. It will be three storeys in height, of Tyndall stone and brick, and the estimated cost is $350,000.

Mr. G. F. Gibberd, Consulting Obstetrician to Guy's Hospital and also to Queen Charlotte's Maternity Hospital, London, addressed a luncheon meeting at the Winnipeg General Hospital, May 29 on Medical Education in Great Britain. On the evening of May 30 he spoke to the Winnipeg Medical Society on "Toxæmia, Hypertension and Chronic Nephritis associated with Pregnancy".

ROSS MITCHELL

NEW BRUNSWICK

Mr. G. F. Gibberd, M.B., M.S., F.R.C.S.(Eng.), F.R.C.O.G. of London, England, appeared as a specially welcome speaker at an extra meeting of the Saint John Medical Society on May 9. His address was titled "Toxæmias, Hypertension and Chronic Nephritis associated with Pregnancy". Dr. George White was able to arrange for Mr. Gibberd to appear in Saint John through the courtesy of the Canadian Society of Obstetricians and Gynecologists.

Dr. L. M. Veniot was the organizer of the North Shore Clinical Meeting in Bathurst in April. There was a large attendance of doctors from Quebec and the New Brunswick North Shore, as well as the Laboratory technicians of the neighbouring hospitals and several District public health nurses. The whole afternoon was devoted to clinical papers followed by the well known Bathurst hospitality. This full day scheme was appreciated by all attending and this method of clinical instructions will perhaps be repeated elsewhere.

The election of officers of Carleton Victoria Medical Society gave the following slate: President—Dr. E. C. Reid of Plaster Rock; Vice-president—Dr. Walter Chestnut of Hartland; Secretary—Dr. Graham Kee of Woodstock.

Dr. K. A. Baird attended the Convention of American College of Allergists in Pittsburg and presented two papers.

Dr. Rex Stanley Wadup of Moncton won the Col. Murray MacLaren Memorial award presented by the Saint John General Hospital to the intern demonstrating the greatest increase in practical knowledge and the best record of service to the hospital, its patients, and to his profession during his intern year.

Dr. A. L. Donovan, chief of Medicine, of the Saint John General Hospital has received his Fellowship in the American College of Physicians.

Dr. Frank Stuart, president of the Saint John Medical Society, was chairman at the Annual Dinner held at the Riverside Golf Club on May 15. The attendance was the largest on record. The speaker was Dr. John M. Barry, Registrar of the N.B. Medical Council and perhaps the oldest practising physician in the province. He related experiences in the early days of his fifty years' practice and spoke of outstanding physicians whom he praised for their qualities and abilities which made them great doctors. Following Dr. Barry's remarks, Dr. C. M. Pratt, Dr. Oliver Peters of Rothesay and Dr. V. D. Davidson also made short additions to the reminiscences of the chief speaker.

A. S. KIRKLAND

NOVA SCOTIA

Fifty-three new Doctors of Medicine were graduated at Dalhousie's May 13 convocation. A class of fifty-five on their entrance to Dalhousie, the graduates have kept intact their ranks to a degree rarely seen in the medical school. Few of them plan further special training at the present time, the great number going into general practice throughout the Maritime Provinces. While this may signify nothing more than the wishes of a group of individuals, it is in such marked contrast to the course pursued by most graduates in recent years as to suggest a trend back to general practice. No student attained the high standard set for the University medal which went unawarded.

Prize winners were: L. T. Snead, Halifax, winner of the Dr. A. F. Miller Prize; W. A. Gardiner, Sydney Mines, winner of the Halifax Infirmary Award; D. A. Gass, Sackville, N.B., the Halifax Infirmary Medical Staff Award; J. E. H. Miller, Halifax, The Victoria General Hospital Prize; A. M. House, Glovertown, Nfld., The Victoria General Hospital Intern Prize; R. S. Wadup, Moncton, the Colonel Murray MacLaren Memorial Award.

Saint Mary's University honoured two Halifax medical men with degrees of Doctor of Laws in honoris causæ at their spring convocation: Dr. G. H. Murphy, first minister of Public Health for Nova Scotia and Dalhousie Professor of Surgery; and Dr. Peter C. Campbell, Provincial Deputy Minister of Health through many years.

The Pictou County Medical Society elected its slate of officers for the ensuing year: President, Dr. C. G. Harries; Vice-president, Dr. Ritchie Douglas; Secretary-Treasurer, Dr. H. A. Locke; representative to the Nova Scotia Medical Society, Dr. Hugh MacKay. Scientific papers at this annual meeting were presented by Dr. Carl Tupper and Dr. H. I. Goldberg of the Dalhousie Medical School's staff. Equally enjoyable was the traditional Pictou County lobster dinner with which the meeting concluded.

Speaking at the annual meeting of the Nova Scotia Division of the Canadian Society of Radiological Technicians held at Halifax were Dr. Basil Coady, Dr. Wallace Roy and Dr. H. R. Corbett. Doctors from each of the four Maritime Provinces moved into the Grace Maternity Hospital at Halifax during the last week in May to take the course of obstetrics, gynæcology and pædiatrics put on by the Dalhousie Post Graduate Committee.

Dr. Robert J. Wiel, Assistant Professor of Psychiatry at Dalhousie addressed the American Psychiatric Association at its 108th annual meeting in Atlantic City.

G. S. Gibberd, M.B., M.S., F.R.C.S., L.R.C.P., F.R.C.O.G., Guy's Hospital, London, was in Halifax where he addressed the profession and students of the medical school.

The Canadian Public Health Association has formed an Atlantic Branch in Nova Scotia to give Provincial public health workers a common organization which all can join, express their views and hear discussions on topics of common interest. Chairman of the membership committee is Dr. Eldon Eagle; Dr. Graham Simms is Secretary-Treasurer.

Visiting Halifax to inspect and discuss the program of medical education being conducted by the Post Graduate Committee of Dalhousie Medical School under a grant from the Kellogg Foundation, Dr. L. R. Kinde and Dr. W. F. Norwood of Battle Creek, Michigan, expressed themselves as well pleased with the progress that has been made during the program's first year.

Dr. C. L. Gosse, Dalhousie Professor of Urology addressed clinical meetings at Moncton and Charlottetown.

President of the Nova Scotia Tuberculosis Association, Dr. Charles Beckwith, brought down a most satisfying annual report. For the year 1951 the number of deaths in Nova Scotia from tuberculosis was 172, and the rate 26.2 per 100,000. This compared with 184 and a rate of 28.9 for the previous year, and 415 with a rate of 73.8 ten years ago. With these figures Nova Scotia stands sixth highest among Canadian Provinces, but lowest of the six provinces which stand by the sea. Dr. Beckwith is not satisfied, however. He says, "The improvement is not as dramatic as falling death rates indicate, for the statistical tables do not show the numbers who have fallen victims to the disease but will never appear as fatalities because they were discovered early enough to be assured of recovery. What I hasten to urge is that you look within the walls of our sanatoria

where almost nine hundred people are being treated for a disease that can be prevented. The disease requiring treatment was developed within their homes as a result of an unknown case of tuberculosis. It follows logically that the home is the place to search for and prevent the infection. It is in the home that prevention primarily is effective. It is regrettable to realize that many who have not tuberculosis now will have it because it is not prevented and will pass through our hospitals in the years before tuberculosis is finally eradicated. It is for those who may be prevented from ever having tuberculosis that we must work most diligently."

ARTHUR L. MURPHY

ONTARIO

The Hospital for Sick Children has been awarded a $10,000 federal health grant to study prevention and treatment of crossed eyes in children. It is the first such grant for the hospital although research on the subject has been in progress for some years.

A Hamilton survey, financed by federal health grants, revealed that two children out of every 100 examined in kindergarten and Grades 1 and 2 have crossed eyes. An additional two out of every 100 have eye muscle defects requiring treatment.

Dr. Mabel Hanington, Fredricton, N.B., who lived in Toronto for twelve years and was a member of the Academy of Medicine, was recently presented with an award from the Canadian Mental Health Association. Dr. Clayton Baxter, professor of psychology, Mount Allison University and president of the New Brunswick Mental Health Association made the presentation of a wrist watch and engraved certificate.

Dr. Hanington took her M.B. from Trinity and her M.D., C.M. from Toronto in 1900. After interning in Boston and doing postgraduate work in England she did medical missionary work in South China for thirteen years. Coming home to Saint John because of illness in 1917 she recovered and went to Halifax to help with relief work after the explosion. In 1918 she was medical inspector of schools for Saint John, later working under the local board of health. Very early in the work the needs of the subnormal child were apparent. The establishment of the first "opportunity classes" were finally sanctioned and carried through by her. Later she established similar classes in Moncton and Fredericton. She gained the interest of forward looking citizens for the inauguration of the Mental Hygiene Council of New Brunswick of which she was secretary treasurer. Part of her work was the preparation and circulation of 15,000 pamphlets on the problem of the feeble-minded, which were distributed at the annual Saint John Exhibition.

The Physiological Society of the University of Toronto was addressed by Dr. Pietro de Nicola, University of Pavia, Italy and Wayne University, Detroit on Physiological Classification of the Hæmorrhagic Diseases and by Professor Sven Lagerstedt, University of Lund, Sweden, on Hepatic Histochemistry.

In April there were 10,642 births, 3,268 marriages, 3,933 deaths and 195 still-births in Ontario.

Because of the interest in any possible relationship between the injection of immunizing agents and the development of paralysis due to poliomyelitis in the inoculted limb the Department of Health has made this statement: "Upon an analysis of over 500 questionnaires returned to the department by medical officers of health during 1951 we observe that 13 patients had received inoculations within one to three months of the occurrence of symptoms. Of this number only 5 had paralysis and *none* of these showed paralysis of the injected limb." The department does not suggest that immunizing injections should be discontinued during the summer months. Data will continue to be collected.

Five lectures on the problems of alcoholism have been presented at weekly intervals to the profession by the staff of Willowdale Hospital. These lectures discussed types of drinking liable to result in alcoholic disease; the manner in which a heavy drinker can modify habits before disease results, the early signs and symptoms of alcoholic disease and the new methods of treatment.

The alcoholic first admitted to Willowdale is treated as a metabolic problem and is given intravenous glucose, insulin and vitamin B. His blood sugar is kept at a low point, just short of reactions for some hours. Later on he is instructed in methods on relaxation by physiotherapists. One physician taking the course in relaxation, in order to teach his patients, fell asleep in middle of the lesson.

The aim is not to turn these alcoholics into supermen who can bear all their own troubles without help but to show them how to talk over their troubles instead of brooding and drinking. The great benefit of Alcoholics Anonymous is the sympathetic companionship.

Women alcoholics are a more difficult problem than men. So often they are barbiturate addicts as well. Usually they are in greater need of help when they come for treatment and their relatives are less tolerant. Often these patients are women of brilliant minds leading boring lives where no demands are made on their intelligence. Then they turn to alcohol for entertainment.

LILLIAN A. CHASE

SASKATCHEWAN

Volume I of the Saskatchewan Health Survey Report dealing with Health Programs and Personnel has been released and will be studied in detail by the Central Health Services Committee of the College at a meeting to be held on June 1. Volume II—a Hospital Survey and Master Plan—has not yet been published.

A new sixteen bed hospital was opened at Kinistino in April. The new hospital includes case room, operating room, clinic laboratory x-ray room and office.

At a meeting of Council held in Saskatoon on May 11 three members were appointed to join Department of Public Health officials in a study of administration problems in the Old Age Pension Fund.

Dr. A. C. Scott has accepted the temporary appointment of Acting Registrar of the College of Physicians and Surgeons of Saskatchewan.

The activities of the Canadian Arthritis and Rheumatism Society, Saskatchewan Division were discussed by Council at their recent meeting. Council endorses the program of the Saskatchewan Division and commends it to the public as worthy of support.

At District Medical Society meetings held in Regina, Saskatoon and North Battleford the problem of Civil Defence was discussed. A Medical Director of Civil Defence was elected in each centre. They are: Dr. D. S. Johnstone, elected by the Regina and District Medical Society; Dr. G. E. Dragan by the Saskatoon and District Medical Society; and Dr. J. J. Hamelin of North Battleford elected by the Battleford and District Medical Society.

Dr. W. S. Lindsay, retiring Dean of Medicine, University of Saskatchewan was honoured at a Dinner and social evening tendered on his behalf by former students and friends. Dr. H. Gordon Young, President of the College of Physicians and Surgeons of Saskatchewan and on behalf of the College presented Dr. Lindsay with a certificate of Honorary Membership for outstanding services in the field of medicine in the Province.

Canad. M. A. J.
July 1952, vol. 67

GENERAL NEWS

[The Editor will be glad to consider any items of medical news or of lighter material that may be sent in for this column.]

WORLD HEALTH IN 1951

Dr. Brock Chisholm, Director-General of the World Health Organization, has reported that 1951 was "an encouraging year for the health of the world". In the introduction of his annual report prepared for the World Health Assembly, he said the past year had been characterized by the gradual and unmistakable development of a "world health consciousness" and by a broadening of the general concept of the right to health.

Commenting on the universality of the right to health, Dr. Chisholm declared that "today in the eyes of humanity it has become the duty of those countries more richly endowed with resources and more skilled in their use and conservation to help those less developed to provide the scientific and medical means of improving the health of their peoples.

"It is not enough, for example, for a few nations to produce adequate supplies of essential antibiotics or insecticides for their own use and leave other nations to their own resources; nations which can manufacture products which the whole world needs must either produce enough to satisfy their own needs and a surplus for export to other countries or must help these countries to produce their own supplies."

RESEARCH IN CANCER

The Canadian Cancer Society reports that the audited financial statement of the Society for 1951 reveals that just over $500,000 was spent last year on research and fellowships. The statement has often been made that in research lies our greatest hope for the future. The Society's efforts in this field of endeavour are commendable. In the year mentioned, over $220,000 was given to the National Cancer Institute for the support of its program and another $242,836 was spent by the divisions of the Society on research, a large part of which went towards the construction of laboratories in British Columbia and Alberta.—From the Canadian Cancer Society's Newsletter, May, 1951.

WARNINGS ON "WONDER DRUGS"

The indiscriminate advertising of so-called "wonder drugs" in the lay press was condemned in the inaugural address to the Fifth World Health Assembly, in Geneva, in May, by the new President, Dr. Juan Salcedo, Jr., Secretary for Health in the Philippines.

Dr. Salcedo declared, "There has been too frequent use of the word 'wonder', which in view of the still experimental nature of some of these products, may be misleading". He continued, "As a result, inadequate treatment is being attempted, symptoms are masked, resistance is created to future measures, and the basic factors of disease control are ignored by the public, gullible—or desperate—enough to want a speedy cure". Dr. Salcedo said that this situation was obviously contrary to public interest and suggested that national health administrations should insure that future alleged cures did not receive premature publication, while advertising and statements relating to new "wonder drugs" and others should be limited to scientific journals and allied publications.

Dr. Salcedo also mentioned the apparent lack of interest among medical graduates of some countries in public health programs. Two reasons he advanced for this problem were the "meagre and often inadequate financial remuneration given public-health personnel", and the failure to give adequate medical curricula.

Two further problems cited by Dr. Salcedo concerned the application of technical assistance programs in less developed countries. The success of these programs, warned Dr. Salcedo, was being hampered by malaria, bilharziasis, malnutrition, tuberculosis, intestinal parasitism, and poor sanitation. He asked the Assembly to bring this matter to the attention of member governments and to recommend that high priority be given to health problems in relation to economic development. Finally, Dr. Salcedo proposed that certain modifications be made toward easing the financial burden of governments participating in technical assistance programs, since in certain cases they hesitated to request assistance due to the high cost to themselves.

MEDICAL-CIVIC DINNER

In a PR move designed to give their fellow-citizens of Evansville, Ind., an opportunity to know their organization better, physician-members of the Vanderburgh County Medical Society recently gave their first medical-civic dinner.

More than 100 industrial, business, civic, religious and labour leaders were guests of the medical society at a banquet in a local hotel. Over 100 physicians turned out to serve as hosts. Guest speaker of the evening was Frank Sparks, president of Wabash College. In a brief address Dr. R. L. Kleindorfer, president of the Vanderburgh County Medical Society, pointed out that medicine has started to put its own house in order and is now doing something about the things for which it has been criticized.—(From *The PR Doctor*: American Medical Association, May 9, 1952.)

ENABLING CERTIFICATES IN ONTARIO

The College of Physicians and Surgeons of Ontario has issued a report from its special committee on the problems arising from the granting of enabling certificates to D.P. and alien physicians.

As regards Chinese applicants for enabling certificates, it was decided that applications from graduates of the universities in China should only be considered when favourable recommendations were forthcoming from proper authorities in Hong Kong.

A summary is given of what has been done about applications from graduates of other foreign medical schools for enabling certificates, covering the five year period 1946-51. Of the large number who applied regarding licenses to practise in Canada, about 300 appeared before the committee, and of these 172 have been granted enabling certificates. Of this group 123 wrote the Medical Council examinations, but only 86 passed.

It is shown that in the past year alone 77 applicants were considered, the largest number in any one year so far. It is expected that from now on there will be fewer such applications.

Some of the points discussed are as follows: It is recognized that candidates should have a first class knowledge of English or French. Without any other agency to assess the knowledge of languages, it is agreed that for the present the Committee on Education and Registration will continue to judge candidates as they appear before the Committee. Internship required by the Committee should be in one of the hospitals on the list approved by the Canadian Medical Association. No definite quota of enabling certificates should be granted for graduates of foreign medical schools. Each candidate must be considered on his merits.

The procedure adopted by the committee in considering the 77 applications for this year was essentially the same as on previous occasions. In all approved cases the

applicant had filed his declaration of becoming a Canadian citizen. No application was approved if the Committee was not fully satisfied with the candidate's knowledge of English or French. In nearly all cases a full twelve months of internship was required before the candidate could sit for the examination and if this period would not be completed in time for the Spring examinations of the Council it was recommended that the candidate should not write his examinations until October, 1952.

The Roffey Park Institute of Occupational Health and Social Medicine, Horsham, Sussex, England will conduct an International Summer School of Social problems of industry and the community, from August 11 to 22, 1952. Dr. T. M. Ling, Medical Director, reports that this is now a regular feature of their year's program.

(Continued on page 48 of the advertising section)

NEWS OF THE MEDICAL SERVICES

Canadian Armed Forces

Majors A. C. Hardman and A. B. C. Powell and Captain R. B. Penton have returned to Canada after serving a tour of duty in Japan and Korea, and Major A. C. Derby and Captains J. S. Neilson and D. A. Cameron have been posted to the Far East as replacement medical officers.

Brigadier W. L. Coke, O.B.E., C.D., R.C.A.M.C., Director General of Medical Services of the Canadian Army visited Quebec and Eastern Commands during the month of May, inspecting the Active and Reserve Force Army Medical units in Quebec, Nova Scotia, New Brunswick and Prince Edward Island.

Colonel J. N. B. Crawford, M.B.E., E.D., R.C.A.M.C., Senior Consultant to the Director General of Medical Services (Army), made a liaison visit to Western Command during the month of May.

Wing Commander D. G. M. Nelson, Staff Officer Medical Services, Air Transport Command R.C.A.F., Lachine, Que. and Senior Medical Officer R.C.A.F. Hospital, Rockcliffe, have completed a three week tour of medical installations in Japan.

Senior Medical Officers serving in Training Command, R.C.A.F., met in a three day medical conference April 28 to May 1, 1952, under the direction of Wing Commander B. R. Brown, Staff Officer Medical Services, Training Command. Air Commodore A. A. G. Corbet, Director of Medical Services, R.C.A.F. and other staff officers from headquarters and leading specialists in the various fields of Aviation Medicine addressed the conference.

Squadron Leader B. O'Brien and Flight Lieutenant D. Stewart, Medical Officers, Royal Canadian Air Force, have recently carried out liaison visits with Royal Air Force in the United Kingdom.

Squadron Leader J. McElroy has returned to Canada after a tour of duty as Senior Medical Officer, R.C.A.F. Station, North Luffenham, England. He has been reassigned to duty as Senior Medical Officer, R.C.A.F. Station, Lachine, Quebec.

BOOK REVIEWS

MODERN TRENDS IN GASTRO-ENTEROLOGY

Edited by F. A. Jones, Physician, Central Middlesex Hospital. 831 pp., illust. $26.50. Butterworth & Co. (Canada) Ltd., Toronto, 1952.

This book is primarily written for those who wish to be brought up-to-date in the field of gastro-enterology. Little space is devoted to aspects of the subject in which few advances have been made in recent years, and the forty-four contributors under the able guidance of the editor, who ranks among the foremost specialists in his country, have concentrated on bringing to the reader the latest information. Those fields in which most progress has been made, as for example the œsophagus, liver disease, and peptic ulcer, are fully dealt with.

While the difficulties of the clinicians may be unknown outside the wards—remarks Sir Heneage Ogilvie, who writes the foreword,—the discoveries of scientists that might provide the answer, often remain the secret of the laboratory. This book tries to bridge the gap in presenting in a masterly fashion, articles dealing with the scientific basis on which modern gastro-enterology is built. It brings together in a form which can be understood and appreciated by all, the specialist and the non-specialist, aspects of the subject which are of interest and importance to physicians and surgeons alike. Close co-operation between these two groups is particularly needed in gastro-enterology, as for instance in the application of existing knowledge to the practical management of such diseases as ulcerative colitis.

Some of the subjects covered are the anæmias of the alimentary tract; the relationship between the alimentary tract and the cardiovascular system in disease; abdominal pain; diseases of the salivary glands; developmental errors; diaphragmatic hernia, cardiospasm; malignant disease; trauma, radiology; gastric secretion; gastritis; peptic ulcer; the physiology and pathology of fat metabolism; gastro-intestinal motility; ulcerative colitis; the dysenteries; megacolon; the differential diagnosis of jaundice, liver biopsy and liver function tests; hepatitis; portal hypertension; pancreatitis; the psychiatric approach to digestive disorders.

The quality of the paper is good and the volume is of a manageable size. It is one of Butterworths' "Modern Trends Series" under the general editorship of Lord Horder.

DISEASES OF THE NERVOUS SYSTEM

W. R. Brain, Physician to the London Hospital and to the Maida Vale Hospital for Nervous Diseases. 1002 pp., illust., 4th ed. $7.50. Oxford University Press, Toronto, 1951.

This volume continues to lead in the field of medical literature, as distinct from garbled compendiums. Its subject—neurology—is broadly handled, so that such things as the latest antibiotic therapy and vitamin fractions are woven into the already durable fabric represented by the three previous ediitons. Everything which might help a student or a busy practitioner to arrive at the crux of a neurological problem—the synonyms, etiology, natural history of the disease, pathology and prognosis—are concisely set out, in clear English. One can read through a few pages of this work without reeling under a load of medical jargon. In addition, safe and tried procedures are given in sufficient detail to be carried out to advantage. The references are full, and closely at hand, not hidden at the back of the volume.

All in all, this neurological volume continues to be a strong right arm for the man in practice, whatever his field.

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SYSTEMIC OPHTHALMOLOGY

Edited by A. Sorsby, Research Professor in Ophthalmology, Royal College of Surgeons and Royal Eye Hospital. 712 pp., illust. $21.00. Butterworth & Co. (Canada) Ltd., Toronto, 1951.

The author has chosen the title of "Systemic Ophthalmology" for this volume. However, the subject matter would have been more familiar to his readers if he had used the traditional term of "Medical Ophthalmology". But as the author points out, the latter term does not fully describe the scope of his book. As the result of advancing knowledge a book dealing with the ophthalmological aspects of general disease can not be fully described by this term. Many conditions have other than purely medical relationships, making the choice of the broader title more applicable.

As the author states in his preface he feels the topic is too big to be handled expertly by one man. Therefore, he has called upon many authors in the English-speaking medical world to contribute chapters. His choice has been excellent and as a whole the authors have carried out their varied tasks expertly. As one might expect there is some unevenness in quality. This may not be entirely the individual author's fault. In some chapters the topic dealt with is so large that it cannot be covered in all details in the space permitted. In others, where the topic is of lesser scope, extreme detail has been utilized. However, such variations are not very noticeable. In general the treatment of the subject matter is comprehensive and lucid. The book is excellently illustrated. Many appropriate half-tone and colour reproductions are presented. Each chapter has a bibliography of pertinent references appended for correlated reading. The volume is beautifully produced on excellent paper in very readable type.

This treatise is a most valuable one and correlates in a most readable fashion present-day knowledge of the ophthalmic aspects of systemic disease. It will form a most valuable addition to the library of the medical school, specialist, and student alike.

CLINICAL HÆMATOLOGY

M. M. Wintrobe, Professor of Medicine and Director, Laboratory for the Study of Hereditary and Metabolic Disorders, University of Utah. 1048 pp., illust., 3rd ed. $15.00. Lea & Febiger, Philadelphia; The Macmillan Company of Canada Limited, Toronto, 1951.

This third edition of Professor Wintrobe's book is a welcome and worthy successor to the previous editions. An increase in the text was to be expected because new information about blood diseases has accumulated rapidly during recent years. This has been kept to a minimum by extensive revision or complete rewriting of whole sections in accord with present knowledge. The book is comprehensive, up-to-date, authoritative and easily read. It is certainly one of the finest texts in this field.

PHYSICAL MEDICINE AND REHABILITATION FOR THE CLINICIAN

F. H. Krusen. 371 pp., illust. $7.50. W. B. Saunders Company, Philadelphia; McAinsh & Co. Ltd., Toronto 5, 1951.

Twenty-four authors, with Dr. Krusen as Editor, have contributed to this volume on Physical Medicine and Rehabilitation. It is designed to acquaint the average clinician with many phases of this rapidly developing specialty. The book is divided into four major sections, dealing with: therapeutic applications of physical agents and procedures; diagnostic applications of physical agents and procedures; clinical aspects of physical medicine and rehabilitation; fundamentals of anatomy, therapeutic exercise and physiology as related to physical medicine and rehabilitation. This book succeeds in its purpose admirably well. It will prove of value, not only to the physiatrist, but also to specialists in many other fields, notably neurology and orthopædics. The general practitioner, the medical student, physical and occupational therapists will also find it a very useful and instructive book.

THE SPECIALTIES IN GENERAL PRACTICE

R. L. Cecil, Professor of Clinical Medicine, Emeritus, Cornell University Medical College, New York City. 818 pp., illust. $16.00. W. B. Saunders Company, Philadelphia; McAinsh & Co. Ltd., 1251 Yonge Street, Toronto 5, Ontario, 1951.

It is perhaps not a gross misinterpretation to infer from the preface that the editor of this work believes some textbooks on the medical specialties are written to impress—or possibly to annoy—other specialists. Based to some extent on this belief is his conclusion that the general practitioner in isolated areas cannot always readily find the information he needs, when he has to undertake the management of those conditions which in larger centres can be referred promptly to the appropriate specialist. This volume has been prepared with the object of lessening those difficulties of practitioners.

Fourteen specialties have been included, ranging from such full grown specialties as obstetrics and ophthalmology to embryonic specialties like psychiatry and minor surgery. All articles are written by distinguished workers in the allotted field. In a sense every contribution is a small monograph, yet all have been compressed within some 750 pages of a single volume. There are many illustrations either as plates or drawings and the writing is in the main free from obscurity, although conciseness has not been sacrificed. The views expressed are orthodox throughout and a practitioner is not likely to face a charge of malpractice, if he has not radically ignored the guidance given in these texts.

Despite its undoubted merits the popularity of the work cannot be predicted with assurance. Because of the compression there is an eclectic rather than an encyclopædic approach and the reader will sometimes be irritated to find that he has looked in vain for the information on the problem that is giving him most worry at the moment. Moreover, it is doubtful if a specialist is the person best qualified to write specifically for the general practitioner. Those who carry on general practice have their own views of the relative importance of the specialties. They know theirs is the oldest form of practice and that an understanding of its problems can be gained only through experience.

THE PHYSIOLOGY OF THE NEWBORN INFANT

C. A. Smith, Associate Professor of Pædiatrics, Boston Lying-in Hospital, Harvard Medical School. 348 pp., illust., 2nd ed. Charles C. Thomas, Springfield; The Ryerson Press, Toronto, 1951.

This is the second edition of this book written particularly for the pædiatrician. It is an exhaustive study of the physiological development of the fetus and the changes which take place at birth. After a short introductory chapter, the subject matter is discussed by anatomical systems. Each chapter ends with a clinical summary which correlates experimental data with clinical findings and a complete bibliography. The index is complete. The last page of the book presents a complete list of normal hæmatological and biochemical values.

Much of the work described is based on animal experiment and this is interpreted in its application to the infant. The section on respiration is particularly well written. The author advances the concept that the physiological anæmia of the newborn is a process of replacement of fetal hæmoglobin by an adult type rather than hæmolysis of the red blood cells. The nutritional requirements and the metabolic changes are discussed in detail. The section on kidney function is well presented and many previously isolated findings are explained. The relationship between kidney function and electrolyte balance and their influence on the intra- and extra-cellular compartments is discussed. The endocrine glands are treated individually with a description of the interaction of maternal and fetal hormonal secretions. A section on immunology has been added. It indicates the common forms of transplacental immunity and the duration of protection. It forms a rational basis for any immunization program.

GENETICS IN OPHTHALMOLOGY

A. Sorsby, Research Professor in Ophthalmology, Royal College of Surgeons and Royal Eye Hospital, London. 251 pp., illust. $10.50. Butterworth & Co. (Canada) Ltd., Toronto, 1951.

This book fills a long felt need in ophthalmology. In ophthalmology, in no less a manner than in general medicine, the rôle of genetics in the development of disease processes has not been emphasized until quite recently. It is true that during the last half century isolated workers have made outstanding contributions to our knowledge of such matters. However, by and large the medical practitioner has left such matters to those interested in the more academic aspects of the profession. The result has been that the rôle of genetics has been greatly neglected. In recent years the interest not only of certain experts in the field, but also that of the medical profession in general has been attached. In ophthalmology, one of those who has taken a leading part in the development of our information and interest in this topic is the author of this most valuable book. Recognizing the reading public for which he is writing, the author has very sensibly divided his book into three parts. The first deals with the theoretical considerations involved in the genetic transmission of characteristics. This is most lucidly and concisely written. One of the commonest difficulties the average medical man has in genetics is the vast new vocabulary required to understand the subject. Sorsby's treatment of this most difficult aspect is admirable. He then goes on to discuss in the following two sections various ocular disturbances that may occur. Section two deals with those isolated ocular anomalies that may occur in the eye. The last section deals with hereditary disturbances which affect the body as a whole and in which the eye may be involved.

The volume is beautifully produced. The format is excellent and makes for easy reading. The illustrations are many and beautifully reproduced, being both in half-tone and in colour. They have been well chosen and are well fitted to the text. The author is to be congratulated on a timely and scholarly volume.

A HANDBOOK OF PSYCHOSOMATIC MEDICINE

A. J. Cantor, Editor of the American Journal of Proctology, Diplomate of the International Board of Proctology. 295 pp. $5.50. The Julian Press, Inc., New York; The Copp Clark Co. Limited, Toronto, 1951.

In common with so many writers on this subject, the author of this volume sees psychosomatic conditions very clearly from the point of view of his own specialty, but fails to demonstrate the same comprehension in visualizing the broader implications of the disorder.

He describes himself as a proctologist who has become convinced of the importance of emotional factors in somatic conditions and appears to have come to the conclusion that simple short-cuts in psychotherapy are efficacious, and should displace current psychotherapeutic techniques. He fails to recognize that psychotherapy is a difficult and time-consuming task; what is more important is that he seems to be unaware of the dangers that can follow the indiscriminate use of directive techniques such as probing for unconscious material, and permitting the patient to relive incidents which all too often may exacerbate the physical condition or even precipitate a psychosis. His utilization of such terms as "The Silent Level" and "Guided Association Analysis" would lead the reader who is untrained in psychiatry to come to the conclusion that he is being presented with new concepts; actually the former term refers to certain levels of the unconscious, and the latter to a technique which has been utilized for many years in psychotherapy but is safe only in the hands of skilled therapists.

This book contributes little to our knowledge of psychosomatic medicine and should be read cautiously by internists and surgeons who otherwise may find themselves in unnecessary difficulty. It is difficult to recommend it to the average Canadian doctor.

TONSIL AND ALLIED PROBLEMS

R. H. Parkinson, Chief of Eye, Ear, Nose and Throat Department, St. Joseph's Hospital, San Francisco, Calif. 432 pp., illust. $12.00. The Macmillan Company of Canada Limited, New York, Toronto, 1951.

A large section of this work is devoted to the anatomy of the related areas. This is illustrated well in an original manner, and can be highly recommended to all those who operate in the throat. The current literature with reference to the physiology of the lymphoid tissue is reviewed. Detailed reviews of the diseases in which the tonsils may play a part are presented. In this regard the author perhaps presents a too detailed account for the work of this scope, of diseases more often discussed in purely medical texts. The reader may still feel that further reference is necessary and an adequate bibliography is supplied.

The description of the technique of tonsillectomy, the instruments necessary and their use, is excellent. The postoperative complications and allied problems are discussed but not in the detail that the reviewer would like, and those familiar with the problem will find much that is controversial in his methods of treatment of the acute diseases of the tonsils, and in his handling of complications following surgery. This work is stimulating reading for anyone who deals with the tonsils and their diseases.

A HISTORY OF NEUROLOGICAL SURGERY

Edited by A. E. Walker, Professor of Neurological Surgery, The Johns Hopkins University. 583 pp., illust. $13.25. The Williams & Wilkins Company, Baltimore; Burns & MacEachern, Toronto, 1951.

After a brief review of ancient neurosurgery, the authors take up in a systematic manner the development of modern neurosurgery. Twelve contributors have combined to produce a delightful and informative history. Following each chapter there is a brief biographical sketch of one of the fathers of modern neurosurgery. Such names as Cushing, Horsley, Dandy, Vincent, Foerster, and others are among those who added to present day knowledge and techniques.

The illustrations and illuminations are extremely well done. There is a bibliography consisting of 2,371 references, so that as well as the interesting text, it provides a valuable reference book. Anyone in this field will certainly want to add this volume to their library.

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THE ADVANCE TO SOCIAL MEDICINE

R. Sand, Professor of Social Medicine in the University of Brussels. 655 pp. 42s. Staples Press Ltd., London, W.1, 1952.

Professor Sand has traced in detail in a single volume the historical evolution of medical practice, the hospitals, hygiene, industrial medicine, social assistance and social service, and the sciences of man, in an endeavour to give to the reader the basis of our present-day concepts of social medicine. He has been admirably successful and his book should be of interest to and a source of much pertinent information for all workers, lay and professional, in the field of social medicine.

The author has not confined his studies to any one country, region, or continent but has provided the reader with a world picture of the advance to social medicine as we understand the term today. In every one of the above fields he has defined the dominant influences of the present age. He has shown that our methods are increasing in efficiency but also in complexity and cost, due to scientific and technical advances in the field of social medicine. He has advanced very sound reasons for "the need for rationalization of effort" and has stated that "the organization of medical practice, of hospital services, of health agencies, of industrial medicine, of social welfare can no longer be conceived upon any but a regional or national plan, with the closest association between preventive, curative and social services".

In view of the fact that public interest is demanding that the benefits of scientific and technical advances in the field of social medicine be made available to all, through government action if necessary, the publication of this book in English is of great value. The author has included a selective bibliography and detailed footnotes. This book can be recommended without reservation to all those interested and working in the field of social medicine.

SURGICAL TECHNIQUE

S. Power, Senior Surgeon to the Dreadnought Hospital, Greenwich; Surgeon to the Royal London Homœopathic Hospital. 380 pp., illust. $6.00. William Heinemann Medical Books Ltd.; British Book Service (Canada) Ltd., Toronto, 1951.

In the preface to this admirable little book the author observes, that, though a Fellow of the Royal College of Surgeons, the young surgeon may know a great deal more about operations than he does about operating. He is further handicapped by the fact that his seniors take minor technicalities for granted and the tyro may only learn their importance from his own blunders. There are 373 pages and the reviewer has estimated that each of them presents at least one point of practical value. To some extent the book is comparable with Thorek's "Surgical Errors and Safeguards". A philanthropist looking for a new project might do worse than buying presentation copies of the volume for resident and junior surgeons in teaching hospitals.

No surgeon ever expects his patient to leave his operating room with a nerve palsy resulting from undue pressures because of faulty posture on the table and yet it may happen. A drain introduced through a stab wound may be occluded, when aponeurosis is drawn upon in closing an incision. A nerve may be included in a ligature. Omentum may intrude between sutures. A common bile duct may be injured, when an unusual relation with the cystic duct or artery is not recognized and the list goes on and on. Reading this book will be a great help to the people for whom it was designed. It would not be a waste of time to many who have long passed the tyro stage. To examiners in practical surgery it might be a vade mecum. Just to save it from being perfect it is noted that "morphine" is spelled as it used to be spelled half a century ago. In a second edition this will be corrected as the author has been admonished for using the anachronism "morphia" and will not do it again.

CLARK'S APPLIED PHARMACOLOGY

Revised by A. Wilson, Reader in Applied Pharmacology in the University of London at University College London and H. O. Schild, Reader in Pharmacology in the University of London at University College London. 691 pp., illust., 8th ed. $7.50. J. & A. Churchill Ltd., London; British Book Service (Canada) Ltd., Toronto, 1952.

This well-known text has been completely revised by two new authors and the same aims have been maintained of bridging the gap between Pharmacology and Therapeutics. The text is clearly written with many more diagrams included than in previous editions. There is an adequate bibliography which follows each section. This is an excellent reference book for any medical man, but particularly valuable to any senior student or intern, who is trying to find his way through the maze of useless therapeutics to which he is often exposed. The rather reasonable price of this volume should be an attractive feature to the latter group.

FOOD AND NUTRITION

E. W. H. Cruickshank, Regius Professor of Physiology in the University of Aberdeen. 443 pp., illust., 2nd ed. $5.75. E. & S. Livingstone Ltd., Edinburgh; The Macmillan Company of Canada, Toronto, 1951.

This edition, some 30% longer than the original one, includes a detailed and interesting account of the activities of the Ministry of Food from 1939 to 1950. There is also considerable material on the history of dietary practices. The book would not be of much practical value to physicians practising in Canada and in addition some of the information in it is open to question.

OPHTHALMOLOGY

A. E. Town, Professor of Ophthalmology, The Jefferson Medical College of Philadelphia. 511 pp., illust. $12.00. Lea & Febiger, Philadelphia; The Macmillan Company of Canada Ltd., 1951.

A number of large and small texts on the general subject of ophthalmology have appeared in the last few years. Another text might be considered an annoyance. However, this book is a good one. It is well organized and clearly illustrated. While the content is not exhaustive, it is broad in its extent, accurate, and to the point in its detail. The content reflects the endeavours of the authors to meet the needs of the medical student and of the general practitioner. Anatomy, physiology, and optics are given adequate attention. Details of subjects, such as retinal detachment, which only interest the specialist, are mentioned but are not taken up extensively. Subjects which are of particular interest to the general practitioner, such as medical ophthalmology and the red eye, are thoroughly discussed and in a manner which would be helpful to the doctor when he is considering his patient. Similarly the general practitioner is given very satisfactory material in the field of ophthalmoscopy.

This is a helpful book for the medical student and general practitioner. The medical student will find it a well rounded aid when he is studying. The practitioner will find his problems discussed in a constructive manner.

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—Williams et al.: Annals of Internal Medicine, Sept., 1948.

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STATISTICS FOR MEDICAL AND OTHER BIOLOGICAL STUDENTS

L. Bernstein, Senior Lecturer in Physiology, London Hospital Medical College and M. Weatherall, Senior Lecturer in Pharmacology, London Hospital Medical College, E. & S. Livingstone Ltd., London; The Macmillan Company of Canada Ltd., Toronto, 1952.

This book was developed from a course of lectures and practical classes given by the authors to medical students in their first year of pre-clinical studies. Its aim is not only to describe, but also to explain, the logical and mathematical bases of those statistical procedures which are commonly used in medical and biological research. The authors felt that students have a considerable amount of factual knowledge of a technical nature, but little or no knowledge of the philosophy or logic of scientific methods. It is, therefore, attempted to show them the way to an understanding of this aspect of the subject. It may be said, that in particular the last three chapters of the book succeed in doing this. The reader is introduced to the mathematical methods employed in the field in simple terms, which are easily understood by everyone familiar with the basic principles of mathematics. Chapters X to XIII are more difficult than the rest, and may be omitted by those who are only interested in the application of basic principles in biological work.

Professor J. H. Gaddum has written an introduction, in which he emphasized that in these sceptical days, even the highest authority carries less weight than it used to, and that it is, therefore, especially important to support conclusions reached in medical research by the statement that the results have been found statistically significant. Some form of instruction in the elements of statistics during the medical curriculum would, therefore, appear to be desirable. This little book gives the basic information, which will serve as an introduction to the subject.

MANAGEMENT OF THE NEWBORN

A. H. Parmelee, Professor of Pædiatrics, University of Southern California School of Medicine. 358 pp., illust. $7.00. Year Book Publishers, Chicago, 1952.

This book is an abbreviated but comprehensive review of the anatomy, physiology and pathology of the newborn infant starting at the time of conception and followed through the newborn period. The author discusses the development of the fetus including the early embryology; the adjustments which are undergone during the process of birth and the neonatal period; the characteristics of the newborn infant, both normal and abnormal; the premature infant; and the various disturbances which occur in the neonatal period directly due to birth processes, to abnormal variations of physiological peculiarities, to prenatal factors, and to acquired infections and postnatal hazards. Authorities are frequently quoted and a good list of references is attached to most of the ten chapters. There is also a complete index. There are many excellent illustrations. The book is well organized into chapters with each chapter subdivided by subheadings. Moreover, each separate condition under discussion is printed in italics so that easy reference to any specific condition can be made readily.

Because of the broad scope of its subject matter on the newborn infant, and more particularly the good organization of its subject matter, this book is an excellent one for general practitioners, medical students and nurses. It is especially useful to the busy general practitioner who includes many newborns in his practice.

A COURSE IN PRACTICAL THERAPEUTICS

M. E. Rehfuss, Professor of Clinical Medicine and S. M. Prevost Lecturer in Therapeutics, The Jefferson Medical College, Phila. and A. H. Price, Associate Professor of Medicine, The Jefferson Medical College, Phila. 938 pp., illust., 2nd ed. $16.75. The Williams and Wilkins Company, Baltimore; Burns & MacEachern, Toronto, 1951.

The volume is divided into four parts. Section one deals with general therapeutic principles. Included is an elementary presentation of subjects which, in the opinion of the authors, are important in the treatment of disease. Emphasis is placed on planning the treatment and outlining a definite plan to the patient, rather than giving vague, general instructions. Adequate space is given to the art of prescription writing, and important information about various kinds of medication and treatments are included. Dietary principles, methods of arrangement and indications for use are dealt with. Section two treats of symptom therapy. The authors stress the necessity of treating symptoms, even while attempting to make a diagnosis of the disease. All the chief symptoms one is apt to encounter in practice are included. Section three treats with specific disorders and diseases. Extensive use is made of a visual system and schematic method of portraying treatment. Each disorder is preceded by a brief outline of the symptoms and diagnostic features. The final section deals with treatment used in various specialties. Radioactive isotopes, radiation medicine and atomic effects are a few of the subjects found in this section.

This book will occupy an important place on the bookshelf of the student and practitioner.

FUNDAMENTALS OF PSYCHIATRY

E. A. Strecker, Professor Psychiatry and Chairman of the Department, Undergraduate and Graduate Schools of Medicine, University of Pennsylvania. 250 pp., 5th ed. $5.00. J. B. Lippincott Company, Montreal, 1952.

This new edition is written primarily for general practitioners, and others in the field of medicine and surgery who should and, as the author puts it, *must* treat great numbers of patients suffering from psychoneurotic and psychosomatic disabilities.

There is an urgent need for more medical personnel trained in the principles of psychiatry which is estimated at about four times the number now available. It is, however, not only the psychiatrist, who has to deal with mental problems, for in about 60% of cases met with in every day practice, the chief reason for illness is not a somatic cause but rather unconscious and unsolved emotional conflicts,—in other words psychopathology. A careful study of this new edition will yield valuable dividends for those, who have to deal with these problems in their practice. A new chapter on Psychotherapy has been added dealing with the treatment techniques available and at the command of every doctor in his treatment of "functionally" sick patients. With the same purpose in mind, the chapter on "Psychosomatic Medicine and Psychiatry" has been completely rewritten.

It is to be hoped that interest of practising physicians and surgeons in the basic principles of psychiatry will be stimulated by this new edition, which is the fifth since the book was first published in 1942.

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WOUNDS OF THE EXTREMITIES IN MILITARY SURGERY

O. P. Hampton, Jr., Instructor in Clinical Orthopædic Surgery, Washington University, School of Medicine; Attending Orthopædic Surgeon, Barnes Hospital, St. Louis City Hospital, St. Louis County Hospital, St. Luke's Hospital. 434 pp., illust. $11.50. The C. V. Mosby Company, St. Louis, Mo.; McAinsh & Co. Ltd., Toronto, 1951.

The resident in any hospital, civilian or military, who is likely to deal with traumatic surgery, should read this excellent monograph.

The earlier chapters on army procedure, wound healing and first aid are the essence of practice in the field. As the text goes forward, the various stages in wound treatment are well described in the light of our present knowledge of antibiotics, and as the result achieved by trial and error in the Second World War. One point, perhaps overly stressed by repetition, but nevertheless of the greatest importance, is the care of the injury by the first surgeon who treats it. Carelessness in this stage, without exception, leads to failure. Another point, very properly stressed, is the element of time elapsing between the primary toilet of the wound and the revision necessary to restore the parts to a position where normal function may be expected to follow in due course, or where a further revision can accomplish this result.

The necessity for blood loss replacement, in shock and in preoperative and operative care is emphasized and the intelligent application of the tourniquet to minimize loss. The illustrations are well chosen and described in the accompanying text. There is very little left to the imagination, either in treatment or in the good and bad results depicted. The estimation of resistance to infection and the method of dealing with a grossly inflamed and activated wound are well described. One is impressed with the amount of detail in this work, the good common sense and literary style.

NEW BOOKS

MODERN TRENDS IN GASTRO-ENTEROLOGY

Edited by F. Avery Jones, M.D., F.R.C.P.
1952. Price $26.50 delivered.

This book aims at bringing together progress in gastro-enterology. Each contributor has been responsible for some advance in his subject and is therefore particularly able to review the present-day position.

SYSTEMIC OPHTHALMOLOGY

Edited by Arnold Sorsby, M.D., F.R.C.S.
1951. Price $21.00 delivered.

This work is the result of the collaboration of a group of experts of international repute, each contributing his knowledge and experience in the subject of which he has made a special study to produce a volume that faithfully reflects current teaching and aspiration.

GENETICS IN OPHTHALMOLOGY

By Arnold Sorsby, M.D., F.R.C.S.
1951. Price $10.50 delivered.

In this work, the first systemic study in England on the genetics of eye disease, stress has been laid on the new developments. The wide range of modes of inheritance and of clinical manifestations are brought out, making the book an important contribution to accurate diagnosis and prognosis.

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A TEXTBOOK OF CLINICAL NEUROLOGY

J. M. Nielsen, Clinical Professor of Neurology and Psychiatry, University of Southern California. 709 pp., illust., 3rd ed. $10.00. Paul B. Hoeber Inc., New York, 1951.

In ten years this textbook has gone into its third edition. This fact alone proves its popularity. For the most part it is well presented and easy to read, but one may justly criticize certain aspects. There is a separate chapter for Multiple Sclerosis, and yet the section on Cerebral Vascular lesions is included in the chapter on "Clinical Cerebral Localization". On page 572 there is an illustration of the scissors posture seen in Little's disease, but it bears little if any relation to the text. The field of neurology is a vast one, and it is easy to criticize the omissions in a single textbook. However, it is felt that the section on idiocy and congenital defects could be expanded. It is well illustrated, and the bibliographies at the end of each chapter contain the more important references to the subject under discussion. It should prove a useful text for students of neurology.

FRONTAL LOBOTOMY AND AFFECTIVE BEHAVIOR

J. F. Fulton, Sterling Professor of Physiology, Yale University. 160 pp., illust. $3.00. W. W. Norton & Company Inc., New York, 1951.

Recently great interest has been focused on frontal lobotomy for the relief of pain and mental disturbances. This monograph comes as a timely reminder that until we know the function of the frontal lobes, can we hope to treat disease with any degree of success by their removal? Dr. Fulton reviews the historical background, and our present knowledge, both structural and functional of the frontal lobes and their relation to other structures of the central nervous system. He reviews the more recent experimental work on animals, and how this has contributed to our present understanding of the various parts of the frontal lobe. He points out the need for a restricted lobotomy procedure to relieve mental disturbances without producing the undesirable side effects so often seen with the radical procedures now in use. The review of lobotomy procedures in man is extremely well done. There is an excellent bibliography.

To anyone interested in the subject, this monograph, is to be highly commended.

THE QUIET ART

A Doctor's Anthology, compiled by R. Coope. 283 pp., illust. $2.40. E. & S. Livingstone Ltd., Edinburgh; The Macmillan Company of Canada, Toronto, 1952.

Somehow one does not often think of medicine as being a "quiet art". But then it is only the few who have the detachment to see that aspect of it. No better proof of being able to look at medicine, rather than merely to be immersed in it, is to be given, than the making of such an anthology as this. The anthologist himself exercises a quiet art, as Dr. Brain points out in his foreword, for discrimination is everything in such a collection. One is not surprised to find Sir Andrew Macphail so frequently quoted, as he was eminently quotable. Osler leads in the number of extracts, then O. W. Holmes. But it is the mixture that makes one read on and on; humour, history, aphorism, poetry, prayer. Not all of it is medical, but none of it but what shows a lively, healthy interest in life.